LISBON SCHOOL OF ECONOMICS & MANAGEMENT
UNIVERSIDADE DE LISBOA

MASTER OF SCIENCE IN
FINANCE

MASTERS FINAL WORK
PROJECT

EQUITY RESEARCH:
FORD MOTOR COMPANY

FRANCISCO MARIA FIALHO PARREIRA

NOVEMBER 2020

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SUPERVISOR:

INÊS PINTO

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Abstract

Ford Motor Company is an American automotive manufacturer and one of the largest companies in the industry in terms of revenues, with 155.9B$ in 2019.

The aim of this research report is to value Ford, following the format recommended by the CFA Institute. The choice of Ford was directly related with my passion for the automotive industry and my curiosity towards the American car culture. This report was produced based on publicly available information until July 31st, 2020, meaning that any information available to the market after that date, was not considered.

Automotive industry is being affected by the global pandemic and its future is still unclear, which brings even higher risk to an industry that is in the middle of a shift towards electric vehicles.

To value Ford, a DCF model was used, based on the WACC method. The model yielded a 2020YE Price Target of 6.67$, with an upside potential of 0.98% from the July 31st, 2020 closing price of 6.61$. The mentioned values lead to a Reduce Recommendation, since the risk level is considered to be high.

JEL classification: G10; G32; G34

Keywords: Ford Motor Company; Automotive; Equity Research; Valuation; Mergers & Acquisitions; DCF, WACC

Resumo

A Ford Motor Company é uma fabricante de automóveis Americana e uma das maiores empresas do setor em termos de receita, com 155,9 mil milhões de dólares em 2019.

O objetivo deste relatório é avaliar a Ford, seguindo o formato recomendado pelo CFA Institute. A escolha da Ford está diretamente relacionada com minha paixão pela indústria automóvel e com a minha curiosidade pela cultura automobilística americana. Este relatório foi elaborado com base em informações disponíveis publicamente até 31 de julho de 2020, pelo que não foram consideradas quaisquer informações disponíveis publicamente após essa data.

A indústria automóvel está a ser afetada pela pandemia e o seu futuro ainda é bastante incerto, o que vem trazer ainda mais risco a uma indústria que se encontra em grande mudança, na direção dos veículos elétricos.

Para avaliar a Ford, um modelo DCF foi usado, baseado no método “WACC”. A avaliação levou a um Preço Alvo de 6.67$ no final de 2020, um potencial ganho de 0,98% em relação ao preço de fecho a 31 de Julho de 2020 de 6,61$. Os valores mencionados levam a uma recomendação de Reduzir a posição, tendo em conta que o risco é considerado elevado.

Classificação JEL: G10; G32; G34

Palavras-Chave: Ford Motor Company; Indústria Automóvel; Equity Research; Avaliação de Empresas; Fusões e Aquisições; DCF, WACC

Acknowledgements

I would like to take this opportunity to thank the persons who made this accomplishment possible.

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My amazing girlfriend for being there through the ups and downs, helping me reach the finish line.

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My supervisor Inês Pinto for the help and guidance in crucial times.

Finally, I would also like to thank all the professors at ISEG, which over the last five years (including the bachelor's degree), contributed for my growth. I know for sure that I will leave ISEG as an improved version of myself 5 years ago.

Once again, Thank You!

Abbreviations

A

AAPC – American Automotive Policy Council
ACEA – European Automobile Manufacturers' Association
ADAS – Advanced Driver-Assistance Systems
AI – Artificial Intelligence
AV – Autonomous Vehicles

B

B$ – Billion Dollars
BEV – Battery Electric Vehicle

C

CAGR – Compound Annual Growth Rate
CapEx – Capital Expenditures
CAPM – Capital Asset Pricing Model
CEO – Chief Executive Officer
CV – Commercial Vehicles

D

DCF – Discounted Cash Flow

E

E.U. – European Union
EBIT – Earnings Before Interest and Taxes
EBITDA – Earnings Before Interest Taxes Depreciation and Amortization
EBT – Earnings Before Taxes
ERP – Equity Risk Premium
EV – Electric Vehicles

F

F – Forecast (e.g., 2020F)
FCEV – Fuel Cell Electric Vehicles
FSM – Ford Smart Mobility
FY – Fiscal Year (e.g., 2019FY)

G

GDP – Gross Domestic Product
GM – General Motors

I

ICE – Internal Combustion Engine
IMF – International Monetary Fund
IPO – Initial Public Offering

K

Kd – Cost of Debt
Ke – Cost of Equity

L

LLC – Limited Liability Company

M

MaaS – Mobility as a Service

O

OICA – Organisation Internationale des Constructeurs d'Automobiles

P

PC – Passenger Cars
PHEV – Plug-In Hybrid Electric Vehicles
PT – Price Target
PwC – PricewaterhouseCoopers

Q

Q1 – First Quarter

R

R&D – Research and Development

S

SEC – Securities Exchange Commission
SUV – Sport Utility Vehicles

T

T$ – Trillion Dollars

U

U.S. – United States of America

V

VNOA – Value of Non-Operating Assets
VW – Volkswagen

W

WACC – Weighted Average Cost of Capital

Y

YE – Year End (e.g., 2019YE)
YoY – Year-over-Year

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Ford Motor Company

Ford: The American Muscle Is Being Electrified

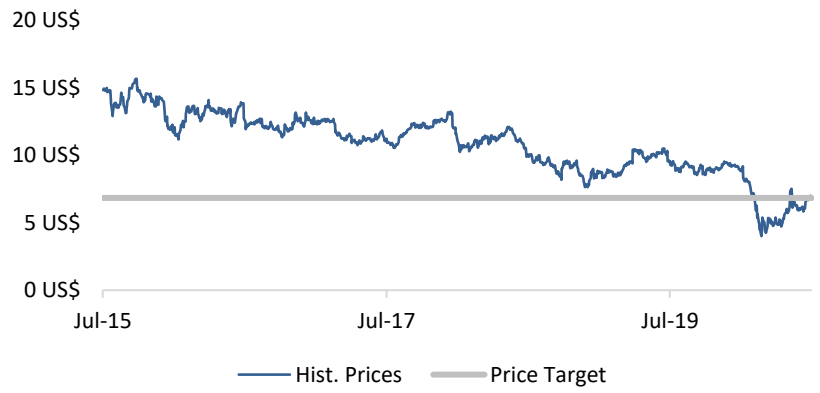
Reduce
High risk
31 July 2020

Price Target	**6.67 US$**
Price on July 31st	6.61 US$
Upside Potential	**0.98%**
Annualized Return	**0.69%**
Market Cap (M$)	26,255
52 Weeks Range	3.96$ - 9.57$
Avg. Shares (in Millions)	3,972

1. Research Snapshot

After a thorough analysis of Ford Motor Company, the **recommendation is to Reduce**, using a Discounted Cash Flow (DCF) model and reaching a **2020YE PT of 6.67$ per share**. This PT implies an **upside potential of 0.98%** from the July 31st, 2020 closing price of 6.61$ per share. The level of **Risk** is considered to be **High**.

Figure 2 - Historical Prices and PT



Source: Student Analysis

Shift towards electrification and COVID-19

Ford is going through a shift towards Electric Vehicles (EV), although financially it will not be beneficial in the short and mid-term. This is a period where the company is investing highly and expecting tighter margins for the coming years. If that alone is not something to worry, the global pandemic of COVID-19 came to make things even harder and more unpredictable. **Ford revenues** are forecasted to grow at a **4.82% CAGR** between 2020F-2024F, after an expected tumble in sales for 2020 – Figure 3.

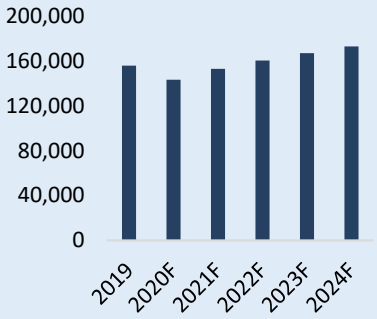
Company Restructuring & Partnerships

For the automotive manufacturers this is a moment to **cut every bit of costs** wherever possible, so they can offset the high investments and smaller margins in the coming years with EV. To face that, Ford is **going through a restructure** which aims at turning its structure more flexible, reducing bureaucracy and decentralizing decision making while cutting costs. At the same time, Ford is **creating strategic partnerships** in order to split EV and Autonomous Vehicles (AV) costs. The company announced an **agreement with Volkswagen (VW)** for joint projects in commercial and electric vehicles. VW also agreed to invest in Argo AI (autonomous driving company), now majority owned by Ford and VW in equal parts and resulting in a **special gain of 3.5B$** in 2020.

Figure 1 - Ford Logo

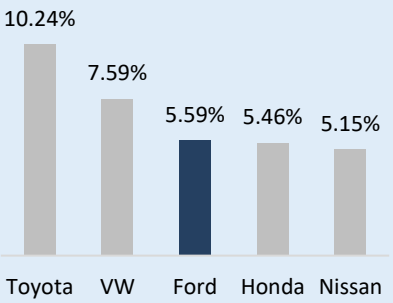
Source: Ford 2019 Earnings Presentation

Figure 3 – Revenues in 2019-2024F



Source: Student Analysis

Figure 4 - Top 5 Brands Market Share Worldwide 2019



Source: Statista

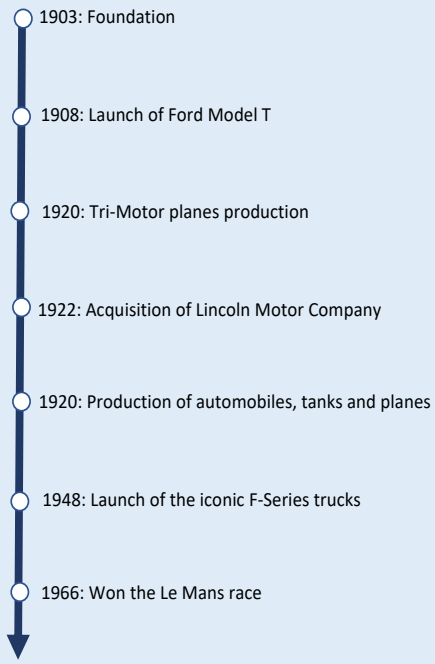
2. Business Description

Ford Motor Company is a global automotive company founded in 1903 and based in Michigan, USA. In 2019 Ford was ranked as the 4th largest automotive manufacturer worldwide in terms of revenue, with 155.9B$. Still in 2019, Ford F-Series was the world's best-selling light truck, with over 1M units sold. The company has in its payroll around 190,000 employees and is present in 5 different continents[1].

Brief History

In 1903, the company was founded with 12 investors and 1000 shares. The first international plant was built one year after in Ontario, Canada. Ford Model T, an iconic Ford product, was introduced in 1908 as a simple, affordable and durable automobile. Model T's assembly line brought big innovation by reducing assembly from 12.5 to 1.5 hours. This was possible thanks to Ford introduction of the "integrated moving assembly line" to the auto production. Before ceasing production, 15 million units of this model were sold, making it one of the all-time best-sellers. Ford is known for its cars and trucks but also produced tri-motor planes for the early commercial airlines starting in the 1920s. In 1922 Ford acquired Lincoln Motor Company, one of the only two brands the company sells nowadays. The company produced jeeps for the U.S. military in 1941 and one year after halted the production of civilian vehicles. During this time Ford only produced automobiles, tanks, planes and other products for the U.S. military effort in the WWII. In 1948 Ford introduced the iconic F-series line of trucks which has been the U.S. best-selling vehicle since 1982. The company became public in 1956, with the largest IPO in history at the time. When talking about racing, Ford managed to break Ferrari's six-year winning streak at the 24 hours of Le Mans in 1966, being the first American manufacturer to win the race. This was the first of four consecutive victories for the brand in the prestigious Le Mans race.

Figure 5 - History Summary



Source: Student Analysis

Operational Segments

Ford is divided into three operational segments: Automotive, Mobility and Ford Credit.

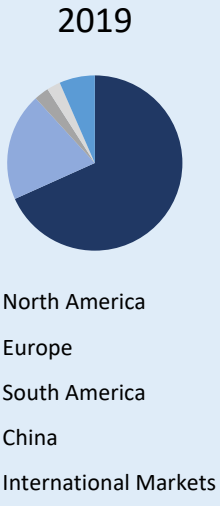
Automotive

The company designs, manufactures, markets, and services a full line of Ford cars, trucks, sport utility vehicles ("SUVs"), electrified vehicles and Lincoln luxury vehicles.

Automotive is the main source of revenue and accounted for 92% of the total revenue in 2019. The automotive segment is divided into five business units: North America, South America, Europe, China (including Taiwan) and International Markets Group – Figure 6. North America is by far the major business unit representing 45% of the total wholesale units sold in 2019, with 2.77 million units from the total 5.39 million. Total wholesale units dropped 10% from 2018YE. This is explained by decreases in all business units, with China having the major absolute contribution with a drop of 197,000 units. Automotive had an EBIT of 4,926M$ in 2019 which translates into a 3.4% EBIT margin, 0.3 ppts lower than 2018FY. EBIT was down 496M$ in 2019, explained by lower sales volume and higher costs, despite the higher net pricing.

Looking at Ford's main market (United States), it is possible to see that sales were mainly originated by **pickup trucks** and **SUVs segments** (71.4% of total sales in

Figure 22 - Automotive revenues per region in 2019



Source: Student Analysis

[1] North America, South America, Europe, Asia and Africa.

the U.S. in 2019). Additionally, Ford is also present in smaller passenger cars (13.4% of sales in the U.S. in 2019), other types of trucks (10.6% of sales in the U.S. in 2019) and luxury cars and SUVs with the Lincoln brand (4.6% of sales in the U.S. in 2019).

Mobility

Mobility segment is mainly related with development costs of autonomous vehicles and investment in mobility through Ford Smart Mobility, LLC (FSM). Costs related with autonomous vehicles includes the following (but not only): development of self-driving systems and its integration with vehicles; autonomous vehicle research and advanced engineering; development of autonomous vehicles as a transportation service network. When talking about FSM, its purpose is to design, build, grow and invest in new mobility services. With FSM, Ford intends to expand its business model to be both an auto and a mobility company. For now, still being mainly a segment of R&D, mobility only represented 0.03% of total revenues in 2019FY. In addition, mobility presented an EBITDA loss of 1.2B$ in 2019FY.

Ford Credit

This segment is responsible for the financing of vehicles sold by the company. Ford Credit's revenue is earned through retail installment sales, operating and financial lease contracts, amongst others. Although Credit only accounted for 8% of Ford's revenue in 2019YE, this segment presented an EBT of 3B$. This translates into an impressive EBT margin of 24.45%.

Main drivers of profitability

The main profit drivers for Ford are **wholesale unit volumes** and **profit margin per vehicle**.

Ford gains its automotive revenue through **wholesales to dealerships**. According to the firm, a "substantial majority" of those dealerships are independently owned. With a considerable proportion of costs being fixed, small changes to wholesale volumes can significantly affect profitability. Ford's credit arm will also benefit from higher wholesale volumes, as it will translate into higher financing revenues.

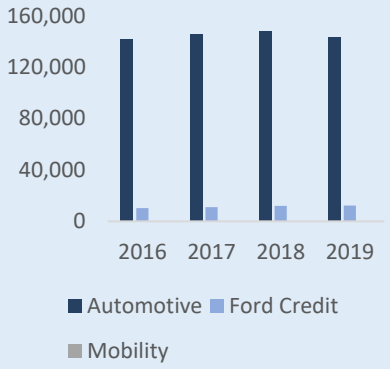
Profit margin depends on two main factors: costs of materials & commodities and vehicle mix**.** According to the company, materials & commodities accounted for around 67% of *Cost of sales* plus *Selling, administrative and other expenses,* in 2019FY – Figure 8. Cars are made of materials as steel, aluminum, plastic, rubber, amongst others. Vehicle mix will also have its role on the company's profitability. Larger vehicles have higher prices and lead to higher profits than smaller vehicles. The U.S., where 63% of Ford's revenue is earned, is a market where more profitable vehicles dominate, SUVs with 34% of revenues and trucks with 51%.

Creating Tomorrow, Together

Creating Tomorrow Together is the name of Ford's long-term **strategy**, announced in 2018. It is based on four pillars:

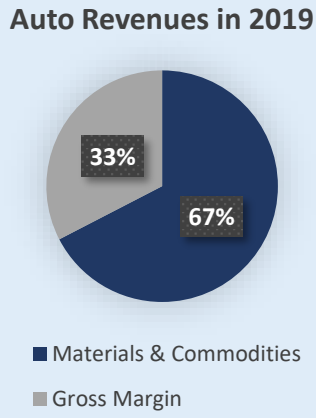
1. **Winning Portfolio** - Create a fresher, more targeted portfolio to compete and win in all markets Ford is present. By 2020YE 75% of the lineup in the U.S. will be replaced compared to 2018YE.
2. **New Propulsion** - Execute a compelling plan for vehicle propulsion that delights customers and supports company's commitment to do its part in

Figure 7 - Revenues by Segment 2016-2019 (in M$)



Source: Ford 10K

Figure 8 - Materials & Commodities Weight in 2019 Revenues



Source: Ford 10K

reducing CO2 emissions as part of the Paris Accord. The plan already started with the unveil of a fully electric Ford Mustang Mach-E – Figure 9.

3. **Autonomous Technology** – Develop the technology, user experience and business models to unlock the massive potential of autonomous vehicles. The company is partnering with Argo AI, a technology company developing a self-driving system. Together with Argo AI, Ford has the largest urban AV testing footprint in the world.
4. **Connected Services** – Establish as a true leader in connected vehicles, with beneficial implications for vehicle owners through growing capabilities in services and customer satisfaction. Connected vehicles provide a platform for new services and engage customers for many years. In 2019, 100% of new vehicles in North America were shipped with connectivity (4G LTE modems).

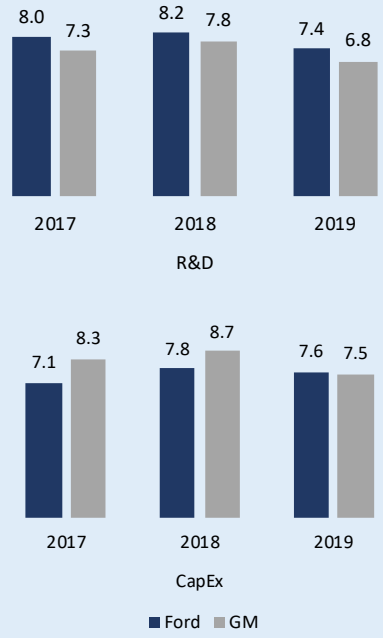
Figure 9 - New Nameplate

Source: Ford 2Q 2020 Earnings Presentation

Ford is going through substantial changes to improve competitive positioning and the profitability of operations. A **global redesign is under way**. Automotive is now a fast pace changing industry, so Ford is trying to change into a more **flexible structure**, **reducing bureaucracy** and **decentralizing decision making** while **cutting costs.** The redesign also includes changes to the vehicle portfolio, by expanding offerings and volumes in most profitable vehicle segments (as SUVs). The objective is to build on strengths while addressing underperforming parts of each regional business. In 2019 global redesign actions pushed EBIT down in 3.2B$. This includes employee separation costs for reduction of workforce around the world. For instance, in **Europe** 6 plants are being sold or closed, management costs are being reduced by 20% and decision-making is being shifted to the lowest layer, reducing bureaucracy.

To address electric and autonomous vehicles while splitting costs, the company announced three **strategic agreements** and **partnerships**, besides the partnership with Argo AI. The partnership with **Volkswagen** will enable collaborations in EV, AV and commercial vehicles, while increasing funding for next generation technology. Additionally, VW agreed to invest in Argo AI, resulting in a 3.5B$ special gain for Ford in 2020. Both companies now own a substantial majority of Argo AI, with both owning equal stakes. A Joint-Venture with **Mahindra** (Ford owns 49% and Mahindra 51%) was created, aiming to drive profitable growth in India and emerging markets. Finally, Ford also made a 500M$ minority investment in **Rivian,** which is a company specialized in electric vehicles. Both companies also agreed to develop together a next generation Battery Electric Vehicle (BEV) using Rivian's platform.

Figure 10 - Investment in CapEx and R&D (in B$)



Source – Ford and GM's annual report

Capital Expenditures and Research & Development

In the current stage of the auto industry, both CapEx and R&D are pivotal to guarantee that Ford will be ready and competitive on electric and autonomous vehicles. The firm has been investing heavily on both indicators. Over the last 3 years, investment in either CapEx or R&D has been above 7B$. When compared with a direct competitor, in this case General Motors (GM), the values invested by both companies is very similar – Figure 10.

Shareholder Structure

Ford equity structure is composed by two types of stock: Common Stock and Class B Stock. As of December 31, 2019, Ford had 3,894,076,999 shares of Common Stock and 70,854,076 of Class B Stock outstanding. **Only Ford family owns Class B Stock**. Common Stock is dispersed with only three beneficial owners

accumulating more than 5% of Common Stock, together accounting for 25.13% of total Common Stock and around 15% of voting rights.

Ford has always been a family firm. Although family members own a small share of the company, they own 40% of voting rights[2] as of 2020. Each holder of Common Stock is entitled to one vote per share. According to the Form S3 (Registration Statement), filed by Ford with the Securities Exchange Commission (SEC), holders of Class B Stock have a number of votes per share derived by a formula, which leads to three possible situations: 40% of voting rights (current situation), 30% of voting rights or 1 vote per share. The formula depends on the number of outstanding Class B shares. Those shares would need to fall below 33,749,932 to trigger the 1 vote per share, which is not likely to happen.

3. Management and Corporate Governance

Governance

Ford's business is conducted by employees, managers and officers under the direction of the Chief Executive Officer (CEO), Jim Farley. They run the company with oversight of the board, to enhance the long-term value of the company. The board adopted a set of corporate governance principles recommended by the Nominating and Governance Committee. Some examples of those principles are as explained next and shown in Figure 11. The company board is mainly independent, with 77% of nominees in 2020 being so. Audit, Compensation and Nominating & Governance committees are entirely composed by independent directors. Regarding executive compensation, it is mainly based on long-term incentives to keep management interests aligned with those of shareholders. Those principles together with the charters of all the committees, provide the framework for the governance of Ford Motor Company. The board has five committees: Audit, Compensation, Sustainability & Innovation, Finance and Nominating & Governance. Governance practices are continuously reviewed by the Board.

Leadership

Ford has a leadership structure which separates the Chairman of the board from the CEO. This way the CEO focuses on delivering excellence on the operational side, while the Chairman focuses on leading the board on matters such as sustainability and stakeholder relations. William Clay Ford Jr was Chairman and CEO between 2001 and 2006, since then, he stepped down from CEO and focused on the Chairman role, position he still holds. The CEO position has not been so stable, with 4 different CEO's since 2006. Jim Farley was appointed for the role in 2020, but he had already occupied multiple leadership roles inside the firm, since he joined Ford in 2007.

Ford Family

With more than 40% of voting power, Ford family has a substantial influence in the company's decisions. The family has a small part of the company's shares but a considerable part of voting rights, which might not be a good thing under the eyes of some investors. However, it might not be a negative situation, as the family is interested in the long-term success of the family company, which carries their name and heritage. Additionally, it also brings stability to Ford's leadership, mainly to the Chairman role which has been occupied by William Clay Ford Jr since 2001.

Figure 11 - Governance Practices

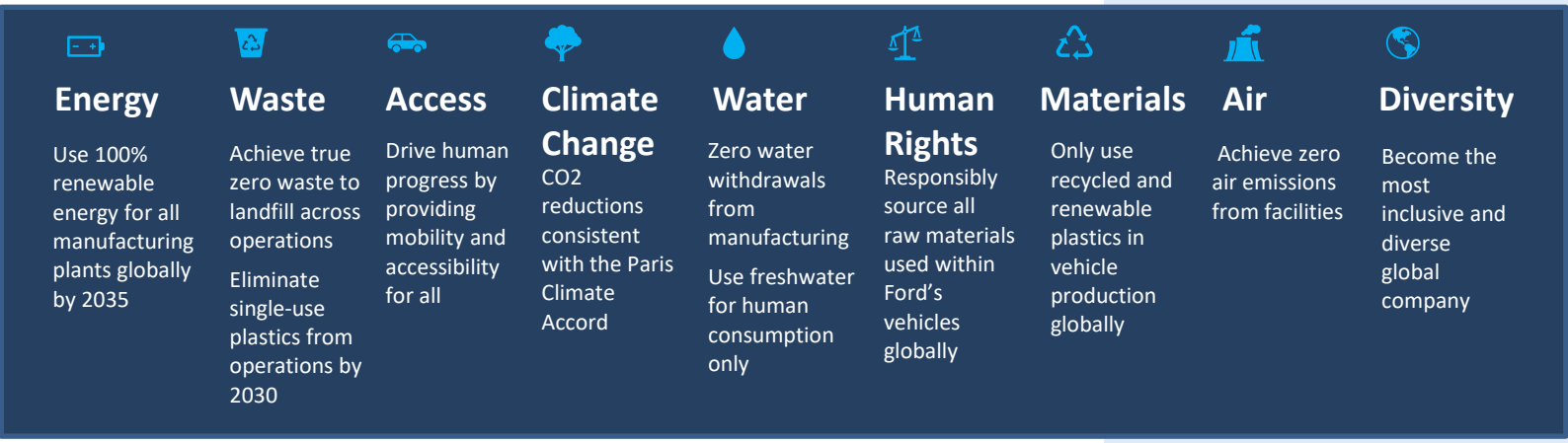
Source – Ford ESG Review

[2] Only accounting for Class B shares

Sustainability

Ford is contributing for the United Nations Sustainable Development Goals, by: **Putting people first,** promoting diversity and inclusion or even supporting community life. **Protecting Our Planet**, by reducing the emissions associated with Ford's vehicles, responsibly managing operations and encouraging the best practices to their suppliers. **Creating Tomorrow Together**, by boosting electrification, developing autonomous vehicles and addressing mobility challenges. Ford is making efforts to create more efficient and sustainable transportation networks with a wider range of mobility options. Altogether, Ford is contributing to eleven different Sustainable Development Goals.

Figure 12 - Ford's Environmental and Social Goals



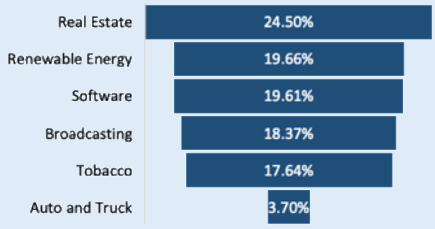
Source - Ford Sustainability Report

4. Industry Overview and Competitive Positioning

Overview

The automotive industry is responsible for designing, manufacturing and selling motor vehicles. The industry employs millions of people worldwide and invests billions of dollars into R&D. According to the American Automotive Policy Council (AAPC), automakers and their suppliers invested approximately 130B$ in R&D in 2018 worldwide, only behind Pharmaceuticals and Technology Hardware. The industry's top 5 manufacturers[3] presented a combined revenue of 1.054T$ in 2019FY. When looking at net margin, vehicle manufacturers are not so attractive, collecting only 3.70% of revenues – Figure 13.

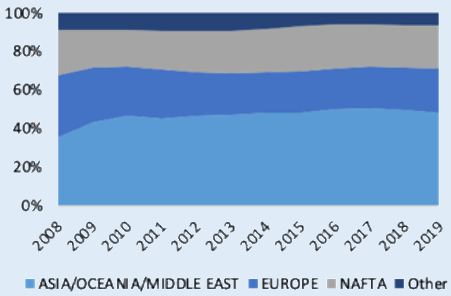
Figure 13 - Net Margin by Industry



Source - Damodaran

Automotive has been shaping people's mobility over the years and will continue to do so in the future. According to the Organisation Internationale des Constructeurs d'Automobiles (OICA), the market has been growing since the financial crisis, with motor vehicle sales worldwide rising 46% from 2009 to 2017. In recent years, the upward trend was broken with the industry experiencing a 1% decrease YoY in 2018. Still according to OICA, in 2019 motor vehicle sales were around 91,296,738 units, representing a new decrease of 4% YoY. Automotive can be divided into two main categories: passenger cars[4] (PC) and commercial vehicles[5] (CV). PC accounted for

Figure 14 - Registration of new vehicles



Source - OICA

[3] Toyota, Volkswagen, Daimler, Ford and Honda

[4] Passenger cars are motor vehicles with at least four wheels, used for the transport of passengers, and comprising no more than eight seats in addition to the driver's seat (OICA definition)

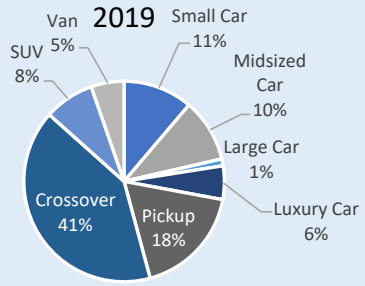
[5] Commercial vehicles include light commercial vehicles, heavy trucks, coaches and buses (OICA definition)

70% of the total unit sales in 2019. However, while PC sales slowed down in the last two years, CV sales kept growing. In 2019, PC sales decreased 6% YoY while CV increased 2% YoY.

The major geographies in terms of total vehicle sales are China (28%), Europe[6] (19%) and U.S. (19%).

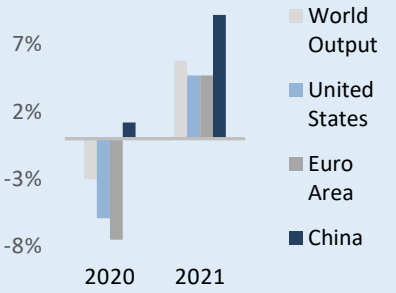
When looking deeper into PC sales, in the E.U. SUV's are clearly gaining weight and are now the major segment, accounting for 38% of sales in 2019, according to the European Automobile Manufacturers' Association (ACEA). In the United States, Crossovers segment is growing and together with pickups accounted for 59% of the market in 2019 – Figure 15.

Figure 15 - U.S. Passenger Car market segmentation



Source – National Automobile Dealers Association

Figure 16 - GDP Growth Forecast

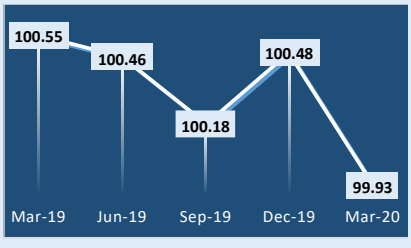


Source - IMF

Figure 17- Average G20 countries gasoline price ($/liter)

Source - Trading Economics

Figure 18 – OECD consumer confidence



Source - OECD

Demand and supply

Vehicles **demand** will face a considerable decrease in 2020 amidst COVID-19, with IHS Markit (automotive research firm) forecasting global sales to decline 22%. Demand behavior from 2020 onwards, will depend on the extent of damage caused by the virus. **PC demand** is driven by multiple factors. Starting with **macroeconomic conditions**. Gross Domestic Product (GDP) growth, consumer income and consumer confidence are strong indicators for the auto industry. All these three are decreasing in 2020 due to COVID-19, which is not a good sign for the industry demand – Figures 16 and 18. However, projections from International Monetary Fund (IMF), show world's real GDP could be up and running by 2021, growing 5.8%. **Car prices** have a negative correlation with demand. When prices rise, demand is expected to decrease. Availability of **financing options** will also affect demand. Good financing options have a positive effect on demand, by allowing consumers with insufficient cash but stable income, to purchase a vehicle. **Gasoline prices** traditionally have a negative correlation with car demand. However, in the long-term this relation will likely lose some strength, as electrified vehicles will take over the industry. According to Trading Economics, gasoline prices are expected to decline, with the average G20 price reaching 0.86$/liter in 2021Q1 – Figure 17.

When talking about **CV**, the main **demand driver** is **GDP growth.** When the economy is growing, with companies consolidating and increasing their businesses, CV sales will tend to increase. On the other hand, when there is an economic contraction, businesses will slow down and CV demand decrease.

General motor vehicles **supply** in the short-term is being affected by the coronavirus. However, in the long-run motor vehicle production is expected to increase. Forecasts made before COVID-19 by HIS and Schaeffler, pointed for 110 million and 117 million motor vehicles in 2025 and 2030, respectively. However, COVID-19 effects are expected to extend in time, which will probably translate into lower 2025 and 2030 production. **Supply is driven** by **prices** and **cost of materials & commodities.** Logic dictates that higher vehicle **prices**, all else remaining constant, will lead manufacturers to increase production. **Materials and commodities** account for a big share of manufacturers operating costs. As mentioned earlier, if we look at Ford example, this costs account for 67% of operating costs. A considerable increase in materials and commodities prices, would jeopardize industry profitability, negatively affecting production. With the shift towards electric and automated vehicles, cost of materials is only expected to increase.

[6] EU27 plus United Kingdom

Industry Overcapacity

According to a study by IHS Markit (shared by Ford on its 2019 10K report), auto industry production capacity for light vehicles was around 139 million units, in 2019. This meant an excess capacity of about 50 million units. Europe and North America excess capacity, as a percentage of production in 2019, increased to 33% and 30%, respectively. In China, sales were below expectations leading to an excess capacity of 104%. Estimates from HIS Markit, indicate that excess capacity is expected to continue at an average of 50 million units per year, declining gradually between 2020 and 2025.

The COVID-19 setback

Long-term effects of the pandemic are still very difficult to predict. In the short-term rough seas are expected. Production was affected, with factories staying closed for a considerable part of the Q1. However, the mid and long-term effects of COVID-19 on the industry are still uncertain. The best scenario, would be a fast discovery of a vaccine, leading to a quick recovery of the global economy. On the other hand, if the pandemic extends in time creating an economic crisis, the industry could be seriously affected given the particular transition stage where the automotive industry stands.

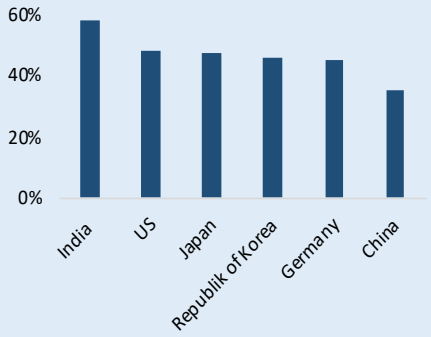
The future is right around the corner

The industry is going through disruptive changes. Four major trends are expected: electrified vehicles, connectivity, autonomous vehicles and shared mobility. Manufacturers will need to make big investments, which already led to some partnerships between companies. As last resource, companies might even need to merge. Fiat Chrysler and PSA, two big manufacturers, already agreed on a merger.

Electrified[7] vehicles – Manufacturers are feeling increased pressure to reduce vehicle emissions. Legislation will boost electric vehicle sales. In the European Union (E.U.), around 40% of new car registrations are expected to be electric by 2030, while in the U.S. are expected 35% and in China 46%, according to the 2019 Strategy& Auto Report (PwC). ***Connectivity*** – Allows networking of cars with the outside world in two different ways. First, enables the consumer to access internet and other multi-media services. Second, allows the cars to communicate with each other and with the traffic infrastructure. Vehicle connectivity is necessary to boost autonomous driving and shared mobility. ***Autonomous vehicles*** – Manufacturers are developing autonomous technologies that could deliver completely autonomous vehicles by 2029, according to the same report by PwC. However, a study from Deloitte shows that consumers are still concerned about the safety of this technologies – Figure 19. ***Shared mobility*** – In some cities it is already possible to see shared vehicles platforms, and this trend is only expected to keep growing. Ideally, it will reduce traffic in urban areas and allow for more affordable mobility. Consumers will not have the expensive costs of owning vehicles, only paying a reduced fee per travel. Electric and autonomous vehicles are the key to make shared mobility financially viable.

These trends will reshape the industry. In the future, vehicle inventory is expected to decrease. For instance, Europe's vehicle inventory could face a reduction of 80 million vehicles mainly due to shared mobility, from 280 to 200 million vehicles in 2030. On the other hand, autonomous and shared vehicles should be responsible for sales growth, due to intensive vehicle usage and far more frequent replacement.

Figure 19 - Consumers who agree autonomous vehicles will **NOT** be safe



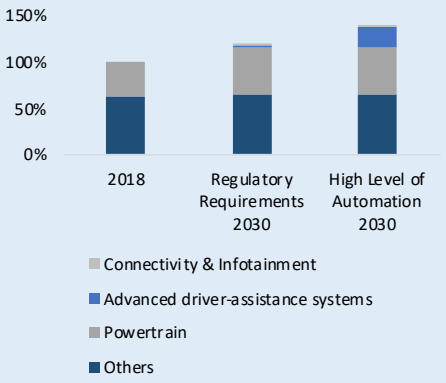
Source - Deloitte 2020 Global Automotive Consumer Study

[7] Conventional hybrids, plug-in hybrids (PHEV), battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV)

Cost of materials is expected to increase between 18% and 40% by 2030 – Figure 20. A car who would only meet regulatory requirements, would see cost of materials increase around 18%. Powertrain[8] cost increase would be the main reason with 14ppts, which comprises the shift from Internal Combustion Engines (ICE) to BEV. When looking at a car equipped with Level 4 Advanced Driver-Assistance Systems (ADAS), which enables autonomous driving, cost of materials could raise as much as 40% by 2030.

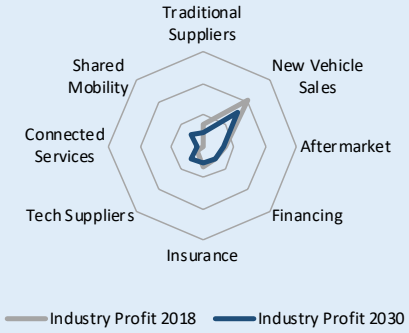
The Industry's revenue will keep growing, but profitability is expected to shift away from the traditional profit pools[9] – Figure 21. Industry profit could grow from around 390B$ to 500B$. Traditional profit pools could see their combined profit go from 70% of the auto industry, to around 53% in 2030. Vehicle manufacturers will have smaller margins on car sales, due to higher materials costs. Margin reduction, together with the big investments being made for the shift towards electric, will likely lead manufactures to search for new sources of profit. One example is shared mobility. Instead of selling their vehicles to companies who provide those services, we could see manufacturers provide the services themselves.

Figure 20 - Estimated Cost of Materials indexed to 100% in 2018



Source - The 2019 Strategy& Digital Auto Report (PwC)

Figure 21 - Industry Profit Distribution



Source - The 2019 Strategy& Digital Auto Report (PwC)

Competitive Positioning

The five forces affecting the industry are as follows (Figure 22):

Threat of new entrants

Automotive is an industry that requires big capital investment, raising high barriers to the potential new entrants. If we consider the current industry environment, which is shifting towards environmentally friendly vehicles, the investment needed is even higher. Current manufacturers also benefit from economies of scale, making things hard for new entrants in the short-term. Brand reputation is crucial in this industry, due to security and quality concerns from consumers. This type of reputation requires years to build, adding another factor against potential new entrants.

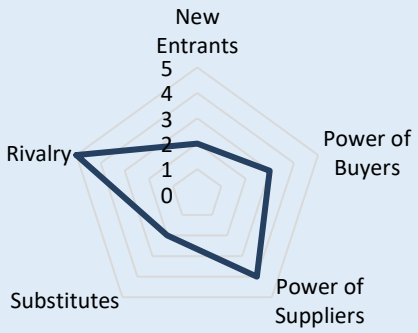
Bargaining power of buyers

There are no switching costs. If costumers do not get fully satisfied by a brand, they will change. Even though they might take years to buy a new car, they will end up changing brands. On the other hand, manufacturers do not depend on a single buyer to earn their profits. Altogether, bargaining power of buyers can be classified as medium.

Bargaining power of suppliers

Some suppliers have little bargaining power, as their products could be easily ordered from another supplier. That is the case for some raw materials. It is also true that there are suppliers who have considerable power over motor vehicle manufacturers. Manufacturers usually produce most of their car parts, but other parts are supplied. Some of these parts are very specific, so it would be hard and take time to find them elsewhere. The required changing time would constraint production and manufacturers cannot afford those situations.

Figure 22 - 5 Forces of Porter



Source – Student Analysis

[8] Powertrain comprises the main components that generate power and deliver that power to the road surface

[9] Traditional profit pools: Traditional Suppliers, New Vehicles Sales and Aftermarket

Threat of substitute products or services

Urban areas nowadays offer multiple substitutes to escape from chaotic urban traffic. From electric scooters and electric assisted bikes to the conventional public transportation. Beyond convenient, all these substitute methods are way less expensive than owning a car. However, these substitutes are still a low threat for car sales.

Rivalry amongst existing competitors

The industry's rivalry is high. The Top 5 brands, which belong to 5 different companies, had very similar market shares in 2019, only Toyota surpassing the 10% barrier by 0.24 ppts, according to Focus2Move (automotive consulting agency who works for companies like VW, Mercedes, Ernst & Young, etc.). Companies need to battle for every piece of market share. According to Ford, manufacturers have been giving price discounts and other incentives for the past several decades, so they can keep market share and production levels.

Figure 23 - SWOT Analysis

Source – Student Analysis

5. Investment Summary

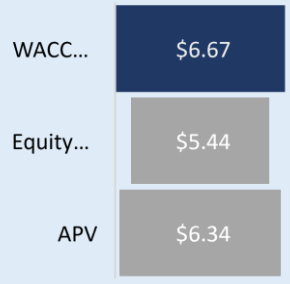
The recommendation is to **Reduce** Ford shares, considering the small **upside potential** of 0.98**%** (**0.69% annualized** return) from the July 31st, 2020 closing price of 6.61$ to the **PT** of **6.67$** in **2020YE**, with the level of **Risk** considered to be **High**.

Ford is expected to see its **Automotive** margins getting tighter in the years to come, as electric vehicles still struggle to be competitive in terms of profitability. Battery prices are the main reason and are not expected to improve significantly in the short term. **Ford Credit** has proved to be a strong complement to the auto segment. However, it strongly depends on automotive sales. **Mobility** is still an early segment, providing many possibilities but also a lot of risks. **COVID-19** is here to add risk to the already risky automotive industry. If the economy fails to quickly recover from the pandemic, automotive companies could face serious problems, as the shift to EV was already causing enough pressure to the industry.

Valuation Methods

Three DCF methods were computed. The main model is based on the WACC method and yields a PT of 6.67$. The complementary models were computed with Equity method and Adjusted Present Value (APV) and yielded PTs of 5.44$ and 6.34$, respectively – Figure 24. Additionally, relative valuation was also used, yielding PTs from 5.93$ to 6.77$.

Figure 24 - Main and Secondary Models Price Target



Source – Student Analysis

Financially Strong

Ford already survived to the financial crisis of 2008, while seeing its two main competitors, General Motors and Chrysler, filing for bankruptcy. Even if COVID-19 pandemic gets worse, Ford is financially strong to face it, having raised nearly 18B$ which should hold the company in the short-term even in a pessimistic scenario.

Awareness of Risks

Investors should be aware of the risks the company faces. Nowadays everyone is aware of the impact of COVID-19 in the economy. But the company also faces operational and other risks that could negatively affect the business, consequently affecting the PT. The main risks Ford could face will be discussed forward

6. Valuation

DCF: WACC Method

The method chosen to reach Ford's price target was the DCF, more precisely the **WACC method**. A detailed Free Cash Flow to the Firm (FCFF) forecast was made for the years ranging from 2021 to 2024, and then a stable growth rate was applied to compute the terminal value.

With the global pandemic impacting automotive sales, Ford was obligated to raise around 18B$ of debt in order to maintain a safe cash balance. However, it is assumed that the company will only repay 5B$ in 2021, then maintaining a stable structure.

Value of Non-Operating Assets (VNOA) includes **marketable securities** which are not part of cash equivalents, **equity in net assets of affiliated companies** and **tax loss carryforwards**.

Altogether, this method leads to a **target price of 6.67$ for 2020YE,** showing an **upside potential of 0.98%,** from the July 31st, 2020 closing price of 6.61$ – Figure 25/Appendix 10.

It is important to understand the variables and assumptions made to reach the target price. The most influent ones are as follows:

Revenues

Automotive segment earns its revenues through **wholesales** to dealerships, which Ford does not own. In order to simplify, sales growth is forecasted through retail sales, assuming sales to dealerships completely follow the growth in retail sales.

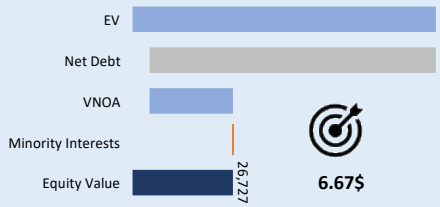
Due to the high uncertainty, brought by COVID-19, surrounding the future of the industry and all its indicators, the assumption for sales growth is fully based on the forecasted real GDP growth – Figure 27/Appendix 20. GDP is the most reliable indicator during this moment of uncertainty and shows a good correlation with auto sales – Appendix 22. It is also assumed that Ford will maintain its market share, so the forecasted sales growth for Ford is the same as for the industry sales.

In the two main markets, **North America** and **Europe**, unit sales and average vehicle price will be forecasted separately, so **unit sales** are assumed to follow **GDP growth**. In the **remaining markets** only revenues are forecasted, thus **revenues** for these regions are assumed to follow each region **GDP growth**. For the International Markets Group, GDP growth is a weighted average between the GDP of the two main regions of this group (Asia Pacific and Middle East & Africa), based on 2019 revenues. North America and Europe were forecasted slightly deeper because together these regions accounted for 88% of Ford revenue in 2019.

In **North America**, **average sale price** is assumed to decline in 2020F by 3.5% (2017-2019 CAGR of Ford's average price in North America), as consumer income and consumer confidence will be lower due to the pandemic, pushing consumers to cheaper vehicles. From 2021F onwards, average price is expected to grow as the company is moving away from the sedans market in the region, focusing on the sale of more profitable vehicles, and at the same time electrifying its portfolio. Average price is assumed to grow by the 2017-2019 CAGR of 3.5% in 2021F, then continuing to increase slowly YoY, from an average price of around 35,000$ in 2021F to around 37,000$ in 2024F.

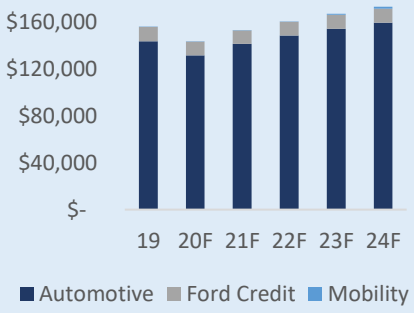
In **Europe**, **average price** is forecasted to decline in 2020F by 2.9% (2017-2019 CAGR of Ford's average price in Europe), considering the same reason as for North America. From 2021F onwards average price is expected to increase due to increased demand for electric cars. Average price is assumed to grow by the 2017-

Figure 25 - Valuation (in M$)



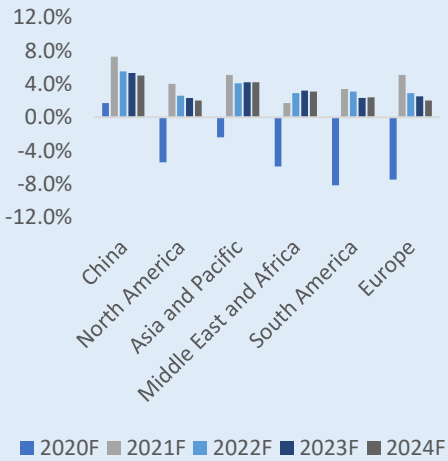
Source – Student Analysis

Figure 26 - Forecasted Revenues by Segment (in Millions)



Source – Student Analysis

Figure 27 – Forecasted GDP Growth per Region



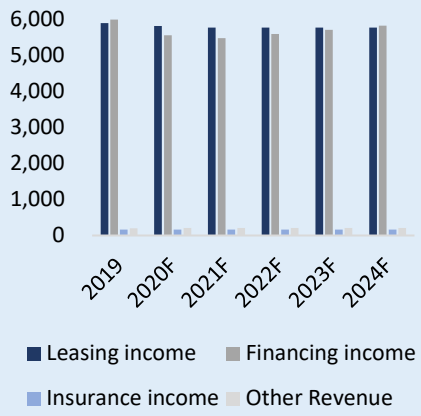
Source – The Economist - Intelligence Unit

2019 CAGR of 2.9% in 2021F, then slowly continuing its growth YoY, from an average price of around 20,500$ in 2021F to around 21500$ in 2024F.

Mobility revenues are still in the beginning and so they are the most challenging to forecast, as there is little information. It was assumed that revenues for this segment will be based on Mobility as a Service (MaaS)/Shared Mobility. The forecast is based on the 2019 Strategy& Digital Auto Report (PwC), which estimates a revenue for MaaS around 1.75T$-1.8T$ in 2030. This would result in a CAGR of 26% from their estimated revenue in 2018 of 108B$-112B$. Applying CAGR, revenues in 2024 would be around 442B$. Assuming Ford will have a small market share of 0.4% in 2024 (from an estimated 0.02% in 2018), Ford Mobility revenues would be 1.7B$. In order to achieve this value in 2024, a CAGR of 112% was applied YoY on mobility revenues.

Credit revenues are originated in four different sources: leasing, financing, insurance and other income – Figure 28. Both **insurance** and **other income** are residual and have been stable over the years. For that reason, these revenues were assumed to remain constant at the 3-year historical average. **Leasing income** is assumed to remain constant as a percentage of the net investment in operating leases, staying at around 5.8B$ throughout the forecasted years. Finally, **financing income** is assumed to remain constant as a percentage of finance receivables. Finance receivables are influenced both by Ford sales and Ford Credit investment in outside receivables. This source of credit revenues is expected to be the most affected by COVID-19 in the short-term.

Figure 28 - Ford Credit Revenues Forecast (in M$)



Source – Student Analysis

Cost of Capital

Ford cost of capital is obtained through **WACC** – Figure 29.

Cost of equity (Ke) is computed based on the Capital Asset Pricing Model (CAPM). **Beta (β)** was computed by regressing Ford's returns with those of the S&P500 index. The calculations were based on monthly data ranging from January 2016 until July 2020. The estimated **β** is **1.43.** As a benchmark, an additional Beta was computed, based on Damodaran's unlevered Beta, yielding a value of 1.23, which is close to the main one – Appendix 12. **Equity Risk Premium (ERP) for the U.S.** is at **5.68%** on July 1st, 2020 and was obtained through Aswath Damodaran. **Risk free rate** is assumed to be 0.59% based on the US 10 Year Note, on July 26th of 2020. Altogether, **Ke** is assumed to be **8.74%**.

Cost of Debt (Kd) is computed as a weighted average between the Kd for Automotive and the Kd for Credit. **Automotive Kd** is obtained through a weighted average between the interest rate in 2019 (computed as interest expense divided by debt), and the new high-cost debt raised due to COVID-19. In 2019 Kd was 6.82% (which is close to the outstanding notes with 6% and 6.2% interest rates). The new "pandemic debt" raised, has an interest rate close to 9%. Altogether, Automotive Kd is forecasted to be around 8.02%. **Ford Credit Kd** was also computed as interest expense divided by debt, obtaining a value of **3.13%**. Joining both segments, **Ford's Kd** is assumed to be **4.41%**. Additionally, Kd was also computed through a **credit default spread**, for comparison. As Ford is an American based company, country default spread is assumed to be 0%. Interest coverage ratio for the years 2021F-2024F is expected to be at 2.13, on average. This value leads to a "synthetic" rating of Ba2/BB (which is the current Ford rating for Fitch Ratings). According to Damodaran, this rating should be linked to a default spread of 2.40%. When added

Figure 29 - Cost of Capital

Ford Beta	1.43
Implied ERP on July 1, 2020	5.70%
US 10 year Treasury Note on July 26	0.59%
Cost of Equity	**8.74%**
Cost of Debt	**4.41%**
WACC	**5.04%**

Source – Aswath Damodaran and Student Analysis

to the risk free mentioned before of 0.59%, Kd through this method is expected to be around 3%.

Ford's **tax rate** was computed as a 3-year average (2016-2018). 2019 was excluded from calculations as Ford presented a negative result, leading to an effective tax rate above 100% – Appendix 15. Between 2016 and 2019, Equity was on average 21% of the capital structure, based on market values. A **structure** of **21% Equity** and **79% debt** is assumed to be the target.

When joining all the pieces, Ford's **WACC** is expected to be **5.04%**.

Capital Expenditures (CapEx) and Dividend Payments

In the past years Ford has been spending more than 7B$ in **CapEx** annually. That money is intended not only to cover depreciation, but also to expand and support its electrification effort. For example, in 2019 the firm announced an investment around 1.45B$ (split over time) in 3 plants, to increase autonomous and electric vehicles manufacturing. However, due to the pandemic Ford already announced that the amount the company expects to spend on CapEx in 2020 is around 6B$. From 2020 onwards, it is assumed that capex will grow at the 2017-2019 average growth of 4% YoY, getting close to 7B$ once again in 2025.

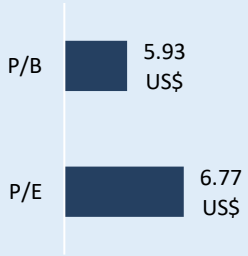
It is considered that there will be **no dividend payment until 2024**. The automotive companies were already under a lot of pressure. First, by the significant investments necessary to shift towards electric and autonomous vehicles. Second, by the fact that those vehicles will push profit margins lower for many years, as it will take time to lower electric and autonomous vehicles costs. Now, with the COVID-19 pandemic shocking sales, automotive firms will be under even more pressure. Moreover, Ford **already suspended dividends once**, between 2006 and 2012, as the auto sector went through tough times. In 2020 dividends were effectively suspended. However, it is not certain for how long.

Other models and Relative Valuation

With the purpose of complement and validate the used model, **two additional DCF models** were computed. The first one, valuing Ford with Equity Method and yielding a PT of 5.44$. The second, valuing Ford with APV and reaching a PT of 6.34$. APV values the Value Created by Debt (VCD) separately, which is expected to be around 7.3B$ - Appendix 13.

Also, relative valuation was used in order to compare the target prices given by the DCF models with a market-based valuation, relying on peer companies. A Peer Group of six companies was selected, from the 10 major automotive companies in terms of revenues in 2019 – Appendix 14. The selection criterion was based on two factors: having a financial services segment and revenues above 120B$. The multiples chosen to perform this analysis were the P/E and P/B. While the P/E shows that the main valuation method computed through WACC method might be accurate, P/B values the company lower – Figure 30/Appendix 14. The average Peer Group P/B of 0.72, shows that investors are not very confident about the near-term future of the industry.

Figure 30 - Relative Valuation



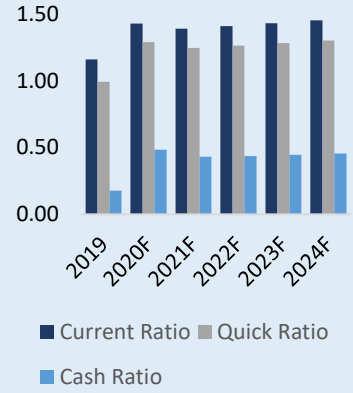
Source – Student Analysis

7. Financial Analysis

Strong liquidity to sail through the pandemic

Liquidity is not a problem for Ford, as the company has shown a **current ratio** consistently over 1, over the years. To face the pandemic without liquidity issues, Ford was one of the companies raising more debt in the United States, with current ratio expected to reach 1.43 in 2020F – Figure 31.

Figure 31 - Liquidity Forecast



Source – Student Analysis

Operational efficiency

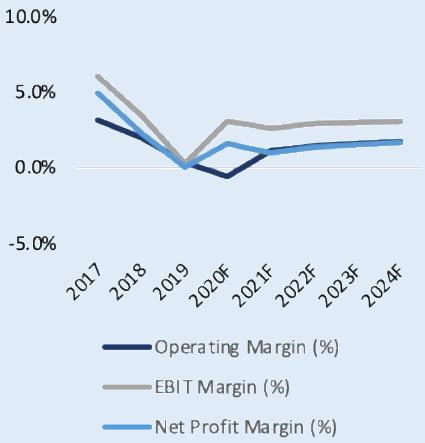
When looking at **efficiency, assets turnover** has deteriorated in 2019 due to a decrease of more than 4B$ in revenue, going from 0.63 to 0.60. With sales forecasted to deepen in 2020, assets turnover is also expected to decline and get to 0.52. The ratio will then increase through the years as sales recover. **Inventory turnover** is expected to remain between 14 and 15 all the way from 2018 to 2024F, which shows a good rotation of inventory throughout the year. If we look at the **cash cycle** of Ford (excluding Credit segment), it takes less than two months to go from paying suppliers and receiving from costumers. Cash cycle remains at around 51 days from 2018 to 2024F. Most of sales are financed through Ford Credit, which explains the low amount of days necessary for the company to receive cash, when excluding credit segment. As a whole, the company takes around 300 days to complete the cash cycle.

Profitability is not expected to be attractive

Ford is no exception to the challenges ahead of the automotive industry.

Operating margin will be negative in 2020, then slowly recovering, reaching a margin of 1.7% in 2024F – Figure 32. **EBIT margin** is expected to stay above the operating margin, as Ford consistently presents other income. In 2020, other income will have a one-off gain that will push EBIT margin well over operating margin, then both margins being expected to grow at the same pace. **Net profit margin** is not expected to be too attractive for investors, as a 1% margin in 2021F, slowly grows to 1.7% in 2024F. **ROE** is expected to go up from 3.9% in 2021F, reaching 6.3% in 2024F.

Figure 32 - Profitability Forecast



Source – Student Analysis

Solvency is not a concern

The company is forecasted to maintain a **debt ratio** around 60% of total assets. In the past years the ratio was stable at exactly 60%. With COVID-19 forcing the firm to raise new debt, a little fluctuation is expected but nothing alarming. **Interest coverage** is helpful to show that Ford is able to cover its interest expenses regularly, with the ratio forecasted to stay above 1 all the way through 2024F.

8. Investment Risks

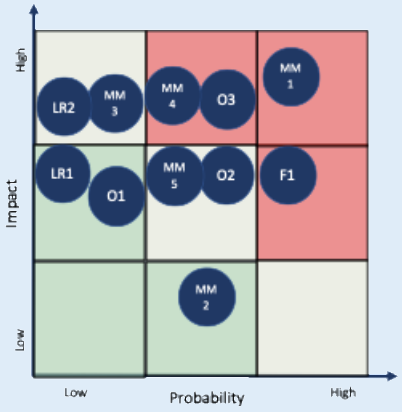
Investors should be aware that Ford is exposed to multiple risks which may affect the company's business. Some of those risks will be briefly explained:

Operational

Structure Redesign (O1)

A structure redesign is under way, with the objective of becoming customer centric and adopt processes based on simplicity, agility and efficiency. If the actions are not

Figure 33- Risk Matrix



Source – Student Analysis

successful or delayed, the firm may not be able to materially reduce costs in the short-term or improve competitiveness in the long term.

Vehicle Defects (O2)

Governmental standards require manufacturers to fix any defects related to vehicle safety, through vehicle recalls. This type of event could not only have considerable financial costs, but also irreparable reputation consequences for Ford brand.

Production Disruption (O3)

A halt in production might occur as a result of various factors. It might happen because of labor issues, resulting from disputes under collective bargain agreements and labor unions. Production could also halt due to supplier disruption, as some vehicle parts are provided by a single company. If those suppliers go through financial distress, or even if they stop supplying for negotiation purposes, production might be disrupted. This risk has increased its probability due to the COVID-19.

Macroeconomic and Market Risks

COVID-19 (MM1)

A second wave or an extension of the pandemic through time, could hit the economy in the mid and long-term. If the economies stop once again, companies will start closing, people will lose their jobs and originate an economic recession.

Consumer Preferences (MM2)

Consumers could shift away from larger and more profitable vehicles, for example due to a decline in the construction industry. That would result in a substantial setback on Ford's financial results.

Geopolitical, Trade Policies and Other Events (MM3)

Ford is a global company, therefore, it would be affected by a geopolitical crisis or other similar event. Protectionist trade policies applied to the auto industry, would not only affect demand, but could also disrupt existing supply chains. The company has operations in markets with volatile economic and political conditions and is chasing opportunities in emerging markets. These investments increase exposure to economic, geopolitical and other risky events.

Industry Sales Volume (MM4)

With a high proportion of fixed structural costs, small changes in industry volumes can have a substantial effect in both cash flow and results of operations. When faced with a financial crisis or recession in key markets as EU, US or China, resulting in sales volume decline, Ford's financial conditions could be compromised.

Commodity Prices and Exchange rates (MM5)

Commodity prices and exchange rates are subject to market volatility. Auto manufacturers can be affected by increases in prices of commodities, necessary to produce vehicles, for example due to trade barriers. Additionally, having presence in multiple countries with different currencies, volatile exchange rates will increase earnings volatility.

Financial Risks

Ford Credit's Credit Losses and Residual Values (F1)

As with every entity who lends money, there is the possibility of non-compliance with the payments by the costumer, which may translate into higher than expected **credit losses**. Additionally, when a vehicle is leased, if the market value of the vehicle ends up being lower than the contracted **residual value**, costumers will return it at the end of the contract. Ford then must sell those vehicles in an auction, for a lower than expected amount.

Legal and Regulatory Risks

Litigations and government investigations (LR1)

Even when complying with governmental standards, the company could face individual or class action lawsuits, which entails high risks and costs. Simply responding to accusations regarding products' defects, imply expenditure of time and valuable resources. Furthermore, litigation is uncertain and could bring significant adverse results. Even in those cases where accusations are ruled in favor of Ford, just the fact of facing those accusations could affect Ford's reputation with costumers.

Industry Regulations (LR2)

Automotive industry is highly regulated worldwide, changing from region to region and country to country. Main regulations are related with vehicle emissions and vehicle safety. Some regions, as the EU are increasing their demands for vehicle emissions, with potential fines for excess emissions. If regulations lead manufacturers to shift towards electric vehicles, but consumer demand does not keep up, manufacturers could face considerable problems. This might happen, for example, if fuel prices stay relatively low and consumers do not receive sufficient incentives to invest in higher priced electric vehicles.

Analysis of Price Target Sensitivity

WACC and Terminal Growth

Figure 104 - Sensitivity Analysis

g (Terminal Growth) \ WACC	$ 6.67	5.34%	5.24%	5.14%	5.04%	4.94%	4.84%	4.74%
1.77%		$ 1.36	$ 2.16	$ 3.00	$ 3.90	$ 4.85	$ 5.87	$ 6.95
1.87%		$ 2.08	$ 2.92	$ 3.82	$ 4.77	$ 5.78	$ 6.86	$ 8.01
1.97%		$ 2.84	$ 3.73	$ 4.68	$ 5.69	$ 6.77	$ 7.92	$ 9.15
2.07%		$ 3.65	$ 4.60	$ 5.60	$ 6.67	$ 7.82	$ 9.05	$ 10.38
2.17%		$ 4.51	$ 5.51	$ 6.58	$ 7.73	$ 8.96	$ 10.28	$ 11.70
2.27%		$ 5.43	$ 6.49	$ 7.63	$ 8.86	$ 10.17	$ 11.59	$ 13.12
2.37%		$ 6.40	$ 7.54	$ 8.76	$ 10.07	$ 11.49	$ 13.01	$ 14.67

Source – Student Analysis

The cost of capital is an important assumption and has a big impact on the price target. If **WACC** was assumed to be 0.3 ppt higher, the model would price Ford at 3.65$ per share. On the other hand, a WACC 0.3 ppt lower than the base scenario,

would translate into a target price of 10.38$. **Terminal Growth** is also an important assumption for the model, as an increase of 0.3 ppt on **g**, would imply a price target of 10.07$. It is possible to conclude that small changes to these variables could change the investment recommendation.

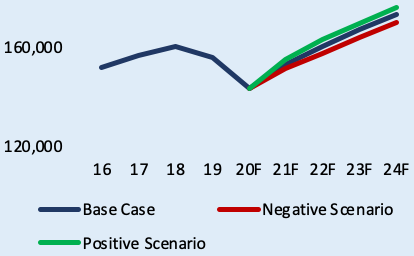
COVID-19 Recovery Scenarios

In a moment where there is still uncertainty surrounding the global pandemic and whether a second wave is happening or not, it is of vital importance to compare different scenarios – Figure 35. As already discussed, the base case led to a PT of 6.67$. A **positive recovery scenario** were revenues recover faster than forecasted, would yield a **PT of 9.04$**. In the **negative scenario**, where revenues would only be back to pre-pandemic levels in 2022, **PT** would go down to **4.38$**.

Monte Carlo Simulation

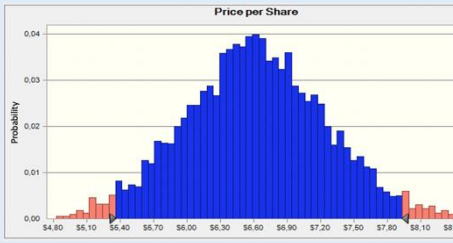
In addition to the sensitivity analysis, Monte Carlo Simulation was performed – Figure 36/Appendix 21. The variables included in the simulation were: Tax Rate, WACC and Terminal Growth. The simulation resulted in a price target between **5.45$** and **8.40$** with a **95% confidence interval**. The price target showed most sensitivity to variations in the WACC rate, closely followed by the Terminal Growth.

Figure 35 - COVID-19 Revenues Recovery Scenarios



Source – Student Analysis

Figure 36 - Monte-Carlo Simulation



Source – Student Analysis

Appendices

Appendix 1: Income Statement

	in millions of US$ except per share amounts								
	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
Revenues									
Automotive	141,546	145,653	148,294	143,599	131,529	141,281	148,321	154,306	159,353
Ford Credit	10,253	11,113	12,018	12,260	11,758	11,636	11,753	11,870	11,987
Mobility	1	10	26	41	87	185	392	833	1,768
Total revenues	**151,800**	**156,776**	**160,338**	**155,900**	**143,374**	**153,102**	**160,467**	**167,009**	**173,109**
Costs and expenses									
Cost of sales Automotive	126,466	131,012	135,595	133,314	121,511	129,892	137,092	143,486	149,203
Depreciation	-	4,987	5,413	6,054	6,009	5,978	6,027	6,096	6,184
All other	-	126,025	130,182	127,260	115,502	123,914	131,065	137,389	143,018
Selling, administrative, and other expenses	12,196	11,527	11,403	11,161	10,741	10,216	9,716	9,478	9,362
Ford Credit interest, operating, and other expenses	8,904	9,047	9,463	9,472	10,561	9,815	9,815	9,815	9,815
Mobility Costs	118	309	674	1,379	1,440	1,504	1,571	1,640	1,713
Total costs and expenses	**147,684**	**151,895**	**157,135**	**155,326**	**144,253**	**151,427**	**158,194**	**164,420**	**170,093**
Operating income									
Automotive	2,884	3,114	1,296	(876)	(723)	1,173	1,513	1,342	788
Ford Credit	1,349	2,066	2,555	2,788	1,197	1,821	1,938	2,055	2,172
Mobility	(117)	(299)	(648)	(1,338)	(1,353)	(1,319)	(1,178)	(807)	55
Total Op. Income	**4,116**	**4,881**	**3,203**	**574**	**(879)**	**1,675**	**2,273**	**2,590**	**3,015**
Interest expense on Automotive debt	894	1,133	1,171	963	1,902	2,373	2,177	2,177	2,177
Interest expense on Other debt	-	57	57	57	-	-	-	-	-
Other income/(loss)	1,794	3,267	2,247	(226)	5,257	2,288	2,288	2,288	2,288
Equity in net income of affiliated companies	1,780	1,201	123	32	32	32	32	32	32
Income/(Loss) before income	**6,796**	**8,159**	**4,345**	**(640)**	**2,509**	**1,622**	**2,416**	**2,733**	**3,159**
Provision for/(Benefit from) income taxes	2,189	402	650	(724)	214	138	206	233	270
Net income	**4,607**	**7,757**	**3,695**	**84**	**2,294**	**1,483**	**2,210**	**2,500**	**2,889**
Less: Income attributable to noncontrolling interests	11	26	18	37	37	37	37	37	37
Net income attributable to Ford Motor Company	**4,596**	**7,731**	**3,677**	**47**	**2,257**	**1,446**	**2,173**	**2,463**	**2,852**
EARNINGS PER SHARE ATTRIBUTABLE TO FORD MOTOR COMPANY COMMON AND CLASS B STOCK									
Basic income	$ 1.16	$ 1.94	$ 0.93	$ 0.01	$ 0.57	$ 0.36	$ 0.55	$ 0.62	$ 0.72
Diluted income	$ 1.15	$ 1.93	$ 0.92	$ 0.01	$ 0.56	$ 0.36	$ 0.54	$ 0.62	$ 0.71
Weighted-average shares used in computation of earnings per share									
Basic shares	3962	3,975	3,974	3,972	3,972	3,972	3,972	3,972	3,972
Diluted shares	3997	3,998	3,998	4,004	4,004	4,004	4,004	4,004	4,004

Appendix 2: Statement of Financial Position

	in millions of US$								
ASSETS	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
Cash and cash equivalents	15,905	18,492	16,718	17,504	46,496	41,889	43,005	44,245	45,724
Automotive & Mobility	-	-	-	8,437	27,766	21,515	20,892	20,295	19,835
Ford Credit	-	-	-	9,067	18,729	20,374	22,113	23,950	25,888
Marketable securities	22,922	20,435	17,233	17,147	17,690	18,067	18,444	18,821	19,198
Ford Credit finance receivables	46,266	52,210	54,353	53,651	50,230	51,315	52,399	53,484	54,569
Trade and other receivables	11,102	10,599	11,195	9,237	9,320	10,011	10,510	10,934	11,292
Inventories	8,898	10,277	11,220	10,786	9,879	10,612	11,141	11,590	11,969
Assets held for sale	-	-	-	2,383	-	-	-	-	-
Other assets	3,368	3,889	3,930	3,339	3,309	3,278	3,248	3,217	3,187
Total current assets	**108,461**	**115,902**	**114,649**	**114,047**	**136,924**	**135,172**	**138,747**	**142,292**	**145,939**
Ford Credit finance receivables	49,924	56,182	55,544	53,703	51,862	52,982	54,102	55,222	56,342
Net investment in operating leases	28,829	28,235	29,119	29,230	28,861	28,861	28,861	28,861	28,861
Net property	32,072	35,327	36,178	36,469	36,682	37,162	37,837	38,695	39,727
Equity in net assets of affiliated companies	3,304	3,085	2,709	2,519	2,433	2,348	2,262	2,176	2,090
Deferred income taxes	9,705	10,973	10,412	11,863	11,973	12,083	12,192	12,302	12,412
Other assets	5,656	8,104	7,929	10,706	9,224	8,442	7,661	6,879	6,098
Total non-current assets	**129,490**	**141,906**	**141,891**	**144,490**	**141,036**	**141,878**	**142,915**	**144,136**	**145,531**
Total Assets	**237,951**	**257,808**	**256,540**	**258,537**	**277,959**	**277,051**	**281,662**	**286,428**	**291,469**
LIABILITIES									
Payables	21,296	23,282	21,520	20,673	18,928	20,307	21,478	22,515	23,437
Other liabilities and deferred revenue	19,316	19,697	20,556	22,987	22,987	22,987	22,987	22,987	22,987
Automotive debt payable within one year	2,685	3,356	2,314	1,445	1,445	1,445	1,445	1,445	1,445
Ford Credit debt payable within one year	46,984	48,265	51,179	52,371	52,371	52,371	52,371	52,371	52,371
Other debt payable within one year	-	-	-	130	-	-	-	-	-
Liabilities held for sale	-	-	-	526	-	-	-	-	-
Total current liabilities	**90,281**	**94,600**	**95,569**	**98,132**	**95,731**	**97,110**	**98,281**	**99,318**	**100,240**
Other liabilities and deferred revenue	24,395	24,711	23,588	25,324	26,441	27,557	28,674	29,790	30,907
Automotive long-term debt	13,222	12,575	11,233	13,233	31,306	26,306	26,306	26,306	26,306
Ford Credit long-term debt	80,079	90,091	88,887	87,658	88,185	88,185	88,185	88,185	88,185
Other long-term debt	0	0	600	470	-	-	-	-	-
Deferred income taxes	691	815	597	490	490	490	490	490	490
Total non-current liabilities	**118,387**	**128,192**	**124,905**	**127,175**	**146,422**	**142,538**	**143,655**	**144,771**	**145,888**
Total Liabilities	**208,668**	**222,792**	**220,474**	**225,307**	**242,153**	**239,648**	**241,936**	**244,089**	**246,128**
EQUITY									
Common Stock, par value $.01 per share (4,011 million shares issued of 6 billion authorized)	40	40	40	40	40	40	40	40	40
Class B Stock, par value $.01 per share (71 million shares issued of 530 million authorized)	1	1	1	1	1	1	1	1	1
Capital in excess of par value of stock	21,630	21,843	22,006	22,165	22,165	22,165	22,165	22,165	22,165
Retained earnings	15,634	21,218	22,668	20,320	22,577	24,024	26,197	28,660	31,512
Accumulated other comprehensive income/(loss)	(7,013)	(6,959)	(7,366)	(7,728)	(7,665)	(7,601)	(7,538)	(7,474)	(7,411)
Treasury stock	(1,122)	(1,253)	(1,417)	(1,613)	(1,394)	(1,345)	(1,295)	(1,246)	(1,196)
Total equity attributable to Ford Motor Company	29,170	34,890	35,932	33,185	35,725	37,284	39,570	42,146	45,111
Equity attributable to noncontrolling interests	113	126	134	45	82	119	156	193	230
Total Equity	**29,283**	**35,016**	**36,066**	**33,230**	**35,807**	**37,403**	**39,726**	**42,339**	**45,341**
Total Liabilities and Equity	**237,951**	**257,808**	**256,540**	**258,537**	**277,959**	**277,051**	**281,662**	**286,428**	**291,469**

Appendix 3: Cash Flow Statement

in millions of US$									
Cash flows from operating activities	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
Net income	4,607	7,757	3,695	84	2,294	1,483	2,210	2,500	2,889
Depreciation and tooling amortization	9,023	9,241	9,385	9,689	9,811	9,728	9,777	9,846	9,934
Other amortization	(306)	(669)	(972)	(1,199)	-	-	-	-	-
Held-for-sale impairment charges	-	-	-	804	-	-	-	-	-
Provision for credit and insurance losses	672	598	504	413	1,247	547	547	547	547
Pension and other postretirement employee benefits ("OPEB") expense/(income)	2,667	(608)	400	2,625	1,271	1,271	1,271	1,271	1,271
Equity investment dividends received in excess of (earnings)/losses	(178)	240	206	203	118	118	118	118	118
Foreign currency adjustments	283	(403)	529	(54)	89	89	89	89	89
Net (gain)/loss on changes in investments in affiliates	(139)	(7)	(42)	(29)	(32)	(32)	(32)	(32)	(32)
Stock compensation	210	246	191	228	219	219	219	219	219
Provision for deferred income taxes	1,478	(350)	(197)	(1,370)	(110)	(110)	(110)	(110)	(110)
Decrease/(Increase) in finance receivables (wholesale and other)	(1,449)	(836)	(2,408)	1,554	7,000	(785)	(785)	(785)	(785)
Decrease/(Increase) in accounts receivable and other assets	(2,855)	(2,297)	(2,239)	(816)	(83)	(691)	(499)	(424)	(358)
Decrease/(Increase) in inventory	(815)	(970)	(828)	206	907	(733)	(529)	(450)	(379)
Increase/(Decrease) in accounts payable and accrued and other liabilities	6,595	6,089	6,781	5,260	(1,745)	1,379	1,172	1,036	922
Other	(1)	65	17	41	31	31	31	31	31
Net cash provided by/(used in) operating activities	**19,792**	**18,096**	**15,022**	**17,639**	**21,017**	**12,513**	**13,478**	**13,855**	**14,356**
Cash flows from investing activities									
Capital spending	(6,992)	(7,049)	(7,785)	(7,632)	(6,000)	(6,234)	(6,477)	(6,730)	(6,992)
Acquisitions of finance receivables and operating leases	(56,007)	(59,354)	(62,924)	(55,576)	(55,576)	(55,576)	(55,576)	(55,576)	(55,576)
Collections of finance receivables and operating leases	38,834	44,641	50,880	50,182	50,182	50,182	50,182	50,182	50,182
Purchases of marketable securities and other investments	(31,428)	(27,567)	(17,140)	(17,472)	(17,472)	(17,306)	(17,306)	(17,306)	(17,306)
Sales and maturities of marketable and other investments	29,354	29,898	20,527	16,929	16,929	16,929	16,929	16,929	16,929
Settlements of derivatives	825	100	358	(114)	292	292	292	292	292
Sale of assets held for sale	-	-	-	-	1,857	-	-	-	-
Other	62	(29)	(177)	(86)	(58)	(58)	(58)	(58)	(58)
Net cash provided by/(used in) investing activities	**(25,352)**	**(19,360)**	**(16,261)**	**(13,769)**	**(9,845)**	**(11,770)**	**(12,013)**	**(12,266)**	**(12,528)**
Cash flows from financing activities									
Cash payments for dividends and dividend equivalents	(3,376)	(2,584)	(2,905)	(2,389)	0	0	0	0	0
Purchases of common stock	(145)	(131)	(164)	(237)	0	(169)	(169)	(169)	(169)
Net changes in short-term debt	3,864	1,229	(2,819)	(1,384)	0	0	0	0	0
Proceeds from issuance of long-term debt	45,961	45,801	50,130	47,604	47,845	47,845	47,845	47,845	47,845
Principal payments on long-term debt	(38,797)	(40,770)	(44,172)	(46,497)	(47,845)	(47,845)	(47,845)	(47,845)	(47,845)
Proceeds/Payments of extra debt for Covid-19	-	-	-	-	18,000	(5,000)	-	-	-
Other	(49)	(151)	(192)	(226)	(155)	(155)	(155)	(155)	(155)
Net cash provided by/(used in) financing activities	**7,458**	**3,394**	**(122)**	**(3,129)**	**17,846**	**(5,324)**	**(324)**	**(324)**	**(324)**
Gross change in cash	1,898	2,130	(1,361)	741	29,017	(4,581)	1,141	1,266	1,503
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	(265)	489	(370)	45	(25)	(25)	(25)	(25)	(25)
Net increase/(decrease) in cash, cash equivalents, and restricted cash	**1,633**	**2,619**	**(1,731)**	**786**	**28,992**	**(4,606)**	**1,116**	**1,240**	**1,478**

					2020F	2021F	2022F	2023F	2024F
Cash, cash equivalents, and restricted cash at beginning of period	$ 14,272	$ 16,019	$ 18,492	$ 16,718	$ 17,504	$ 46,496	$ 41,889	$ 43,005	$ 44,245
Net increase/(decrease) in cash, cash equivalents, and restricted cash	$ 1,633	$ 2,473	$ (1,774)	$ 786	$ 28,992	$ (4,606)	$ 1,116	$ 1,240	$ 1,478
Cash, cash equivalents, and restricted cash at end of period	$ 15,905	$ 18,492	$ 16,718	$ 17,504	$ 46,496	$ 41,889	$ 43,005	$ 44,245	$ 45,724

Appendix 4: Common-Size Statement of Financial Position

	in millions of US$								
ASSETS	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
Cash and cash equivalents	7%	7%	7%	7%	17%	15%	15%	15%	16%
Automotive & Mobility	-	-	-	3%	10%	8%	7%	7%	7%
Ford Credit	-	-	-	4%	7%	7%	8%	8%	9%
Marketable securities	10%	8%	7%	7%	6%	7%	7%	7%	7%
Ford Credit finance receivables	19%	20%	21%	21%	18%	19%	19%	19%	19%
Trade and other receivables	5%	4%	4%	4%	3%	4%	4%	4%	4%
Inventories	4%	4%	4%	4%	4%	4%	4%	4%	4%
Assets held for sale	0%	0%	0%	1%	0%	0%	0%	0%	0%
Other assets	1%	2%	2%	1%	1%	1%	1%	1%	1%
Total current assets	**46%**	**45%**	**45%**	**44%**	**49%**	**49%**	**49%**	**50%**	**50%**
Ford Credit finance receivables	21%	22%	22%	21%	19%	19%	19%	19%	19%
Net investment in operating leases	12%	11%	11%	11%	10%	10%	10%	10%	10%
Net property	13%	14%	14%	14%	13%	13%	13%	14%	14%
Equity in net assets of affiliated companies	1%	1%	1%	1%	1%	1%	1%	1%	1%
Deferred income taxes	4%	4%	4%	5%	4%	4%	4%	4%	4%
Other assets	2%	3%	3%	4%	3%	3%	3%	2%	2%
Total non-current assets	**54%**	**55%**	**55%**	**56%**	**51%**	**51%**	**51%**	**50%**	**50%**
Total Assets	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
LIABILITIES									
Payables	9%	9%	8%	8%	7%	7%	8%	8%	8%
Other liabilities and deferred revenue	8%	8%	8%	9%	8%	8%	8%	8%	8%
Automotive debt payable within one year	1%	1%	1%	1%	1%	1%	1%	1%	0%
Ford Credit debt payable within one year	20%	19%	20%	20%	19%	19%	19%	18%	18%
Other debt payable within one year	-	-	-	0%	-	-	-	-	-
Liabilities held for sale	-	-	-	0%	-	-	-	-	-
Total current liabilities	**38%**	**37%**	**37%**	**38%**	**34%**	**35%**	**35%**	**35%**	**34%**
Other liabilities and deferred revenue	10%	10%	9%	10%	10%	10%	10%	10%	11%
Automotive long-term debt	6%	5%	4%	5%	11%	9%	9%	9%	9%
Ford Credit long-term debt	34%	35%	35%	34%	32%	32%	31%	31%	30%
Other long-term debt	0%	0%	0%	0%	0%	0%	0%	0%	0%
Deferred income taxes	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total non-current liabilities	**50%**	**50%**	**49%**	**49%**	**53%**	**51%**	**51%**	**51%**	**50%**
Total Liabilities	**88%**	**86%**	**86%**	**87%**	**87%**	**86%**	**86%**	**85%**	**84%**
EQUITY									
Common Stock, par value $.01 per share (4,011 million shares issued of 6 billion authorized)	0%	0%	0%	0%	0%	0%	0%	0%	0%
Class B Stock, par value $.01 per share (71 million shares issued of 530 million authorized)	0%	0%	0%	0%	0%	0%	0%	0%	0%
Capital in excess of par value of stock	9%	8%	9%	9%	8%	8%	8%	8%	8%
Retained earnings	7%	8%	9%	8%	8%	9%	9%	10%	11%
Accumulated other comprehensive income/(loss)	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%
Treasury stock	0%	0%	-1%	-1%	-1%	0%	0%	0%	0%
Total equity attributable to Ford Motor Company	12%	14%	14%	13%	13%	13%	14%	15%	15%
Equity attributable to noncontrolling interests	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Equity	**12%**	**14%**	**14%**	**13%**	**13%**	**14%**	**14%**	**15%**	**16%**
Total Liabilities and Equity	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Appendix 5: Common-Size Income Statement

	in millions of US$								
Revenues	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
Automotive	93%	93%	92%	92%	92%	92%	92%	92%	92%
Ford Credit	7%	7%	7%	8%	8%	8%	7%	7%	7%
Mobility	0%	0%	0%	0%	0%	0%	0%	0%	1%
Total revenues	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Costs and expenses									
Cost of sales Automotive	83%	84%	85%	86%	85%	85%	85%	86%	86%
Depreciation	0%	3%	3%	4%	4%	4%	4%	4%	4%
All other	0%	80%	81%	82%	81%	81%	82%	82%	83%
Selling, administrative, and other expenses	8%	7%	7%	7%	7%	7%	6%	6%	5%
Ford Credit interest, operating, and other expenses	6%	6%	6%	6%	7%	6%	6%	6%	6%
Mobility Costs	0%	0%	0%	1%	1%	1%	1%	1%	1%
Total costs and expenses	**97%**	**97%**	**98%**	**100%**	**101%**	**99%**	**99%**	**98%**	**98%**
Operating income									
Automotive	2%	2%	1%	-1%	-1%	1%	1%	1%	0%
Ford Credit	1%	1%	2%	2%	1%	1%	1%	1%	1%
Mobility	0%	0%	0%	-1%	-1%	-1%	-1%	0%	0%
Total Op. Income	**3%**	**3%**	**2%**	**0%**	**-1%**	**1%**	**1%**	**2%**	**2%**
Interest expense on Automotive debt	1%	1%	1%	1%	1%	2%	1%	1%	1%
Interest expense on Other debt	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other income/(loss)	1%	2%	1%	0%	4%	1%	1%	1%	1%
Equity in net income of affiliated companies	1%	1%	0%	0%	0%	0%	0%	0%	0%
Income/(Loss) before income	**4%**	**5%**	**3%**	**0%**	**2%**	**1%**	**2%**	**2%**	**2%**
Provision for/(Benefit from) income taxes	1%	0%	0%	0%	0%	0%	0%	0%	0%
Net income	**3%**	**5%**	**2%**	**0%**	**2%**	**1%**	**1%**	**1%**	**2%**
Less: Income attributable to noncontrolling interests	0%	0%	0%	0%	0%	0%	0%	0%	0%
Net income attributable to Ford Motor Company	**3%**	**5%**	**2%**	**0%**	**2%**	**1%**	**1%**	**1%**	**2%**

Appendix 6: Key Financial Ratios

	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
Liquidity Ratios								
Current Ratio (x)	1.23	1.20	1.16	1.43	1.39	1.41	1.43	1.46
Quick Ratio (x)	1.08	1.04	0.99	1.29	1.25	1.27	1.28	1.30
Cash Ratio (x)	0.20	0.17	0.18	0.49	0.43	0.44	0.45	0.46
Efficiency Ratios								
Total Assets Turnover (x)	0.61	0.63	0.60	0.52	0.55	0.57	0.58	0.59
Days Sales Outstanding (days)								
Excluding Credit Segment	27	28	23	26	26	26	26	26
Consolidated	277	276	273	284	273	266	261	258
Inventory Turnover (x)	15	14	14	15	14	14	14	14
Days Sales in Inventory (days)	22	24	26	26	24	25	25	25
Days Payables Outstanding (days)	54	49	48	48	48	49	49	49
Operating Cycle (days)								
Excluding Credit Segment	103	101	98	100	99	99	100	100
Consolidated	354	349	347	358	345	340	336	332
Cash Cycle (days)								
Excluding Credit Segment	49	52	49	52	50	51	51	51
Consolidated	299	300	299	310	297	291	286	283
Profitability Ratios								
Operating Margin (%)	3.1%	2.0%	0.4%	-0.6%	1.1%	1.4%	1.6%	1.7%
EBIT Margin (%)	6.0%	3.5%	0.2%	3.1%	2.6%	2.9%	2.9%	3.1%
Net Profit Margin (%)	4.9%	2.3%	0.1%	1.6%	1.0%	1.4%	1.5%	1.7%
ROA (%)	3.0%	1.4%	0.0%	0.8%	0.5%	0.8%	0.9%	1.0%
ROCE (%)	2.6%	1.7%	0.3%	-0.4%	0.8%	1.1%	1.2%	1.4%
ROE (%)	22.2%	10.2%	0.1%	6.3%	3.9%	5.5%	5.8%	6.3%
Earnings Per Share	$ 1.94	$ 0.93	$ 0.01	$ 0.57	$ 0.36	$ 0.55	$ 0.62	$ 0.72
Solvency Ratios								
Debt Ratio (%)	60%	60%	60%	62%	61%	60%	59%	58%
Debt Structure (Short Term/Total Debt)	33%	35%	35%	31%	32%	32%	32%	32%
Coverage of Short-Term Debt (x)	0.54	0.46	0.37	0.45	0.44	0.45	0.46	0.47
Debt to EBITDA (x)	5.54	6.31	7.83	7.21	7.18	6.97	6.84	6.68
Debt to Equity Ratio (x)	4.41	4.26	4.66	4.84	4.50	4.24	3.98	3.71
Equity Multiplier (x)	7.36	7.11	7.78	7.76	7.41	7.09	6.77	6.43
Interest Coverage (x)	7.86	4.54	0.37	2.32	1.68	2.11	2.26	2.45

Appendix 7: Income Statement Forecasting Assumptions

	Notes	2017	2018	2019	2020F	2021F	2022F	2023F	2024F	Assumptions Explained
		Income Statement								
Automotive Revenues		Revenues								
North America Vehicle Price Growth	YoY	-	5.1%	2.0%	-3.5%	3.5%	2.5%	1.7%	1.2%	In 2020 average price in U.S. is assumed to decrease by 3.5% (2017-2019 CAGR of av. price), as consumers have less confidence.Then, average price is expected to increase as Ford further moves towards SUV's and Trucks. At the same time, vehicle eletrification is also expected to increase prices. It is assumed average price increases again in 2021 by the 2017-2019 CAGR of 3.5%, then continuing to increase slowly.
North America Average Vehicle Price	US$	32,842	34,506	35,208	33,961	35,163	36,035	36,660	37,105	
Europe Vehicle Price Growth	YoY	-	8.6%	-2.4%	-2.9%	2.9%	2.1%	1.4%	1.0%	In 2020 Ford average vehicle price in Europe is forecasted to decrease by the 2017-2019 CAGR of 2.9%. Then, av. price is also expected to grow in Europe as all new nameplates are offering an electrified option.It is assumed av. price will grow by the 2017-2019 CAGR of 2.9% in 2021, then continuing to slowly increase.
Europe Average Vehicle Price	US$	19,437	21,101	20,596	19,991	20,578	21,001	21,303	21,518	
North America Vehicle Unit Sales	YoY	-	-1.7%	-0.5%	-5.4%	4.0%	2.6%	2.3%	2.0%	For all marktes it is assumed that Ford will mantain its market share, thus sales variations YoY are the expected total market variations. Due to the high uncertainty surrounding the economy and all its indicators, unit sales/revenues are assumed to follow each region GDP, as it is the most reliable indicator at the moment. In Ford's main markets (U.S. and Europe), unit sales YoY are assumed to follow GDP real growth YoY. In the remaining markets, revenues YoY are assumed to follow GDP real growth YoY, as average price is not forecasted for these regions.
Europe Vehicle Unit Sales	YoY	2.3%	-3.0%	-6.2%	-7.5%	5.1%	2.9%	2.5%	2.0%	
China Revenues	YoY	6.9%	-7.7%	-21.7%	1.7%	7.3%	5.5%	5.3%	5.0%	
International Markets Group Revenues	YoY	6.9%	-10.0%	-10.4%	-3.3%	4.2%	3.8%	3.9%	3.9%	
South America Revenues	YoY	19.9%	-8.5%	-26.4%	-8.2%	3.4%	3.1%	2.3%	2.4%	
Mobility Revenues	YoY	900%	160%	58%	112%	112%	112%	112%	112%	It is assumed mobility revenues are 100% based on Shared Mobility/Mobility as a Service(MaaS). A study from PwC estimates a revenue for MaaS around 1.75T$-1.8T$ in 2030. This would result in a CAGR of 26% from their estimated revenue in 2018 of 108B$-112B$. Applying CAGR, revenues in 2024 would be around 442B$. Assuming Ford will have 0.4% of market share in 2024 (from 0.02% in 2018), Ford Mobility revenues would be 1.7B$. In order to achieve this value in 2024, a CAGR of 112% was applied YoY.
Ford Credit Revenues										
Leasing Income	% of Net investment in Op. Leases	20%	22%	22%	21%	21%	21%	21%	21%	Leasing income is composed by the leased vehicle depreciation and interest on the lease. It is assumed to remain constant as a percentage of Net investment in Op. Leases, based on the last 3 years average.
Financing Income	% of Finance receivables	5%	5%	6%	5%	5%	5%	5%	5%	Financing revenue is the interest on receivables. It is assumed to stay constant as a percentage of finance receivables, based on the last 3 years average.
Automotive Costs & Expenses		Costs and Expenses								
Cost of sales Automotive (excluding Dep. & Amort.)	% of Auto Revenues	86.5%	87.4%	86.4%	87.1%	87.7%	88.4%	89.0%	89.7%	Cost of sales as a percentage of revenues is assumed to grow through the years, as the growth of electrified vehicles in the short/mid-term will also mean higher costs. It is assumed cost of sales will grow at a pace similar to that in 2017-2018. In 2018 and 2019, there were non-recurrent Global Restructuring costs of 537M$ and 3181M$ which were subtraceted for these calculations. In 2020F, Ford will still have restructuring costs, expected by the company to be between 0.7B$ and 1.2B$, and so a cost of 1B$ will be added.
Selling, administrative, and other expenses	YoY	-5%	-1%	-2%	-4%	-5%	-5%	-2%	-1%	Ford is going through a Global Restructure, in order to transform its structure into a more flexible and efficient one. Thus a decrease in Selling, Administrative and other expenses is expected. It is assumed that costs will initially decrease slightly faster than the last 3 year average, then slowing.
Interest expense	% of Debt	7.12%	7.94%	6.82%	8.02%	7.84%	7.84%	7.84%	7.84%	Interest as a percentage of debt is computed through a weighted average, between the interest rate paid in 2019 and a 9% interest rate for new Covid debt.

Ford Credit Costs & Expenses										
Interest expense	US$ in Millions	3,175	3,930	4,389	4,397	4,405	4,405	4,405	4,405	Interest expense values between 2017 and 2019 were retrieved from Ford Credit independent 10K. The interest rate will be assumed to remain constant throughout the years.
Interest expense	% of Debt	2.39%	2.82%	3.13%	3.13%	3.13%	3.13%	3.13%	3.13%	
Operating and other expenses	US$ in Millions	1,857	1,782	1,661	2,361	1,661	1,661	1,661	1,661	Operating and other expenses are mainly fixed costs. It will be assumed that this costs will remain constant, except for 2020F where Ford Credit is expected to recognize bigger credit losses, due to the economic consequences caused by covid-19. Average credit losses are assumed to be already incorporated in Operating and other expenses, which means that the additional cost in 2020F is only the excess from the average credit losses in the past years.
Mobilty Costs	YoY	-	162%	118%	4%	4%	4%	4%	4%	A study from PwC about Mobility as a Service, implies a profit margin for the industry of 3.1% in 2030. That profit margin was assumed to be true for 2024, and so mobility costs were assumed to be 96.9% of revenues, meaning around 1.7B$. Mobility costs were then assumed to grow at a CAGR of 4% YoY, in order to obtain 2024 costs of 1.7B$ from 1.3B$ in 2019.
Income Taxes	% of Net Income	6.40%	15.00%	113.10%	8.53%	8.53%	8.53%	8.53%	8.53%	Income taxes were computed as the average between 2016 and 2018. 2019 was left out as its values were outliers. Calculations can be seen on Appendix "Income Tax".

Appendix 8: Balance Sheet Forecasting Assumptions

Balance Sheet									
	Notes	**2017**	**2018**	**2019**	**2020F**	**2021F**	**2022F**	**2023F**	**2024F**	
Assets										
Current Assets										
Short Term Finance Receivables	% of Finance receivables	48%	49%	50%	49%	49%	49%	49%	49%	Short term finance receivables are the last 3 year average as a percentage of total finance receivables. Finance Receivables are calculated by adding the investment made in the acquisition of outside fin. receivables to the previous year value, and also adding the change in Ford created finance receivables.
Receivables	DSO	27	28	23	26	26	26	26	26	Receivables are computed based on the last three years average Days Sales Outstanding.
Inventory	Inventory turnover	14	13	13	13	13	13	13	13	Inventory is computed based on the last three years average Inventory Turnover.
Non-Current Assets										
Long Term Finance Receivables	% of Finance receivables	52%	51%	50%	51%	51%	51%	51%	51%	The reasoning is the same as for short term finance receivables.
Net investment in operating leases										
Automotive	US$ in Millions	1,574	1,705	1,612	1,630	1,630	1,630	1,630	1,630	Net Investment in operating leases both for Auto and Credit, have been stable through the years and are assumed to continue the trend. They are computed as an average of the last 3 years.
Credit	US$ in Millions	26,661	27,414	27,618	27,231	27,231	27,231	27,231	27,231	
Liabilities										
Payables	DPO	67	60	59	60	60	60	60	60	Payables are computed based on the last three years average Days Payables Outstanding.
Segmentation of New Debt Raised										
Short Term										
Automotive		7%	4%	3%	5%	5%	5%	5%	5%	The allocation between Auto and Credit of any debt raised (except for extra Covid-19 debt) will be based on the historic division of debt.
Ford Credit		93%	96%	97%	95%	95%	95%	95%	95%	
Long Term										
Automotive		12%	11%	13%	12%	12%	12%	12%	12%	
Ford Credit		88%	89%	87%	88%	88%	88%	88%	88%	
New Debt:										
Change in short-term debt	US$ in Millions	1,229	(2,819)	(1,384)	0	0	0	0	0	Excluding debt raised to face the pandemic, it is assumed that Ford will mantain the same amount of short-term and long-term debt throughout the years by issuing debt with the same amount as the debt expiring.
Proceeds from long-term debt	US$ in Millions	45,801	50,130	47,604	47,845	47,845	47,845	47,845	47,845	
Repayments of long term Debt	US$ in Millions	(40,770)	(44,172)	(46,497)	(47,845)	(47,845)	(47,845)	(47,845)	(47,845)	
Extra cash borrowed due to Covid-19	US$ in Millions	-	-	-	18,000	(5,000)	-	-	-	Ford raised around 24B$ to face the pandemic in the first 6 months of 2020. However, by July of 2020 they had already repaid around 6B$. In 2021 it is assumed that the company will repay 5B$ of the high interest "pandemic debt", in order to decrease interest costs after the (assumed) stabilization of the pandemic.

Appendix 9: Cash Flow Forecasting Assumptions

Cash Flow Statement

	Notes	2017	2018	2019	2020F	2021F	2022F	2023F	2024F	
Depreciation										
Property, Plant and Equipment	% of PPE	10.41%	10.05%	10.25%	10.24%	10.24%	10.24%	10.24%	10.24%	All three depreciation types are assumed to remain constant as a 3 year average in terms of percentage. The operating leases referred and which originate this depreciation have Ford as the Lessor.
Tooling	% of Tooling	26.80%	27.91%	32.89%	29.20%	29.20%	29.20%	29.20%	29.20%	
Total Operating Leases	% of Op. Leases	14.76%	14.07%	12.48%	13.77%	13.77%	13.77%	13.77%	13.77%	
Capex	US$ in Millions	**(7,049)**	**(7,785)**	**(7,632)**	**(6,000)**	**(6,234)**	**(6,477)**	**(6,730)**	**(6,992)**	Total capex will decrease in 2020 and is expected by Ford to stay around 6B$ in order to lower costs. From 2021 until 2024 it is assumed that CAPEX will grow 4% a year (last 2 years average growth), and get back close to the 7B$ mark.
Land, Plant & Equipment and Other	US$ in Millions	4,413	4,412	4,513	3,128	3,157	3,400	3,652	3,915	Net tooling is assumed to stay as an average of the last 4 years. After that, depreciation is calculated, which will lead to the necessary investment to mantain net tooling unchanged. Investment in PPE is assumed to be the difference between total CAPEX and tooling investment
Tooling	US$ in Millions	2,636	3,373	3,119	2,872	3,077	3,077	3,077	3,077	
Provision for credit and insurance losses	YoY	-11%	-16%	-18%	202%	-56%	0%	0%	0%	Provisions for credit and insurance losses are assumed to grow 202% in 2020F, which means an extra value of 700M$ (based on the 1st semester Ford filings) to the average of previous years. From then on, it is assumed that credit losses return to the average between 2016 and 2019.
Decrease/(Increase) in finance receivables (wholesale and other)	YoY	-42%	188%	-165%	350%	-111%	0%	0%	0%	Finance receivables are expected to decrease in 2020F based on a decrease of 9.7B$ in the first half of the year. From then on, it is assumed that credit losses return to the average between 2016 and 2019.
Cash payments for dividends and dividend equivalents	% of operating cash flow	13%	16%	16%	0%	0%	0%	0%	0%	Automotive companies were already under a lot of pressure by the significant investments necessary to shift towards electric vehicles. The global pandemic came in the worst time possible for these companies. That being said, it will be assumed that Ford is not going to pay dividends in the next five years. It would not be the first time, as dividends were already halted between 2006 and 2012.

Appendix 10: WACC Method Valuation

Values in millions of US$

FCFF	2021F	2022F	2023F	2024F	Terminal Value
Operating Profit*	6,079	6,678	6,994	7,420	
NOPAT (Net Op. Profit after Taxes)	5,561	6,108	6,398	6,787	
Operating Non Cash Charges	10,165	10,214	10,283	10,371	
Net increase in WC	(830)	(641)	(622)	(599)	
CapEx	(6,234)	(6,477)	(6,730)	(6,992)	
Investment in Finance Receivables and Operating Leases	(5,394)	(5,394)	(5,394)	(5,394)	
FCFF	3,268	3,810	3,935	4,173	143,314
PV	3,111	3,453	3,395	3,428	117,735
Enterprise Value	**131,123**				
Net Debt	126,418				
VNOA	22,141				
Minority Interests	119				
Ford Equity Value	**26,727**				
Price per Share	**$ 6.67**				

*Adds back Ford Credit interest expense, which Ford treats as Operating Cost

Appendix 11: Valuation Main Assumptions

Ford Beta	1.43
Implied ERP on July 1, 2020	5.70%
US 10 year Treasury Note on July 26	0.59%
Cost of Equity	**8.74%**
Cost of Debt	**4.41%**

WACC **5.04%**

g 2.05%

Weighted average between U.S. and Europe's 2021 expected inflation rate

Appendix 12: Beta Calculation

Computed based on Damodaran Data:

Auto & Truck Unlevered Beta		0.49
Financial Services Unlevered Beta		0.1
Estimated Book Value of Assets of Ford excluding Credit on 2020F	$	53,098
Estimated Book Value of Assets of Ford Credit on 2020F	$	155,488
Weighted Average Unlevered Beta		**0.20**
Market Cap as of July 28,2020	$	28,000
Book Value of Debt 2020F	$	173,307
D/E		6.19
Levered Beta		**1.23**

Beta based on Ford VS SP500

monthly data from January 2016 until July 2020

Ford/S&P500 Covariance	0.002569
S&P 500 Variance	0.001791
Ford Beta*	**1.43**

*beta used in valuation

Appendix 13: Secondary Valuation Models

Consolidated Equity Method

Values in millions of US$

FCFE	2021F	2022F	2023F	2024F	Terminal Value
Net Profit	1,483	2,210	2,500	2,889	
Non Cash Charges	11,859	11,909	11,978	12,065	
Net increase in WC	(830)	(641)	(622)	(599)	
CapEx	(6,234)	(6,477)	(6,730)	(6,992)	
Investment in Finance Receivables and Operating Leases	(5,394)	(5,394)	(5,394)	(5,394)	
Net Borrowing	(5,000)	0	0	0	
FCFE	(4,115)	1,607	1,732	1,969	30,129
PV	(3,784)	1,359	1,347	1,409	21,550
Equity Value	**21,881**				
Minority Interests	119				
Ford Equity Value	**21,762**				
Price per Share	**$ 5.44**				

Adjusted Present Value

Values in millions of US$

FCFF	2021F	2022F	2023F	2024F	Terminal Value
Operating Profit	6,079	6,678	6,994	7,420	
NOPAT (Net Op. Profit aft	5,561	6,108	6,398	6,787	
Non Cash Charges	10,165	10,214	10,283	10,371	
Net increase in WC	(830)	(641)	(622)	(599)	
CapEx	(6,234)	(6,477)	(6,730)	(6,992)	
Investment in Finance Receivables and Operating Leases	(5,394)	(5,394)	(5,394)	(5,394)	
FCFF	3,268	3,810	3,935	4,173	127,722
PV	3,100	3,430	3,360	3,381	109,078

Total PV of FCFF	**122,349**
Net Debt on 2021F	126,418
VCD	7,304
VNOA	22,141
Ford Equity Value	**25,377**
Price per Share	**$ 6.34**

	WACC	5.04%
	Tax Rate	8.53%
	Debt Weight on Capital Structure	0.79
	Unlevered Cost of Capital*	**5.40%**

*Based on Modigliani and Miller formula:
Unlevered = WACC/(1-Tax*Debt Weight)

	F2021	F2022	F2023	F2024	Terminal Value
VCD	202	186	186	186	8,074
PV	202	178	170	163	6,793
Total VCD	**7,304**				

Assuming Kd=r
or company interest rate = market interest rate

Kd 4.41%

Appendix 14: Peers and Relative Valuation

Company	Headquarters	Financial Services	Revenues in Millions	Revenues in Millions of US$	P/E	P/B	Selected Peers
General Motors Co	United States	Yes	$ 137,237	137,237	5.84	0.90	Yes
Fiat Chrysler Automobiles NV*	-	-	-	-	-	-	No
Renault SA	France	Yes	€ 55,537	65,461	(43.77)	0.18	No
Volkswagen AG	Germany	Yes	€ 252,632	297,775	5.48	0.55	Yes
Daimler AG	Germany	Yes	€ 172,745	203,613	18.29	0.71	Yes
Bayerische Motoren Werke AG	Germany	Yes	€ 104,210	122,831	7.42	0.61	Yes
Honda Motor Co Ltd	Japan	Yes	¥ 15,888,617	149,963	7.36	0.54	Yes
Nissan Motor Co Ltd	Japan	Yes	¥ 11,574,247	109,243	4.65	0.28	No
Toyota Motor Corp	Japan	Yes	¥ 30,225,681	285,283	10.57	0.98	Yes
Hyundai Motor Co	South Korea	Yes	₩ 105,746,422	88,874	12.98	0.55	No
Average	-	-	-	162,253.17	3.20	0.59	
Selected Peers Average	**-**	**-**	**-**	**199,450.23**	**9.16**	**0.72**	

*Excluded due to a merger in progress
**Data from Reuters

Relative Valuation

Ford Value based on:	in Millions of US$	Price per Share
P/E	27,082	**6.77 US$**
P/B	23,759	**5.93 US$**

Exchange Rate	As of 07/08/2020
USD.EUR	0.8484
USD.JPY	105.95
USD.KRW	1189.85

Appendix 15: Income Taxes

	2016	2017	2018	2019	AVERAGE EXCLUDING OUTLIER 2019	Auto & Truck Industry Average Effective Tax Rate*
Income before income taxes (in millions of US$)	6,796	8,148	4,345	(640)		
U.S. statutory rate	35.00%	35.00%	21.00%	21.00%	21%	
Non-U.S. tax rates under U.S. rates	-1%	-5%	-1%	47%	-2%	
State and local income taxes	2%	2%	2%	12%	2%	
General business credits	-3%	-4%	-9%	67%	-5%	
Dispositions and restructurings	7%	-12%	5%	46%	0%	
U.S. tax on non-U.S. earnings	-6%	-7%	8%	-49%	-2%	
Prior year settlements and claims	0%	0%	1%	-5%	0%	
Tax-exempt income	-1%	0%	0%	21%	0%	
Enacted change in tax laws	-4%	-7%	-3%	-13%	-5%	
Valuation allowances	3%	6%	-10%	-19%	0%	
Other	0%	-2%	1%	-15%	-1%	
Effective Tax Rate	**32.20%**	**6.40%**	**15.00%**	**113.10%**	**8.53%**	**5.93%**

*data from Damodaran as of January 2020

	2019
Tax Loss Carryforwards (M$)	1726

Operating loss carryforwards for tax purposes were $4.3 billion at December 31, 2019, resulting in a deferred tax asset of $1.7 billion

Appendix 16: Automotive Revenues Forecast

In millions of US$
except for unit sales

	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
North America									
Units (in thousands)	-	2,847	2,800	2,785	2,635	2,740	2,811	2,876	2,933
Revenue	**92,610**	**93,500**	**96,617**	**98,053**	**89,475**	**96,348**	**101,302**	**105,429**	**108,843**
Europe									
Units (in thousands)	1,494	1,528	1,482	1,390	1,286	1,351	1,391	1,425	1,454
Revenue	**28,515**	**29,700**	**31,271**	**28,628**	**25,703**	**27,807**	**29,202**	**30,363**	**31,282**
China	**4,680**	**5,003**	**4,619**	**3,615**	**3,676**	**3,945**	**4,162**	**4,382**	**4,601**
Asia Pacific, Middle East & Africa,	**10,921**	**11,670**	**10,499**	**9,410**	**9,100**	**9,486**	**9,846**	**10,234**	**10,636**
South America	**4,820**	**5,780**	**5,288**	**3,893**	**3,574**	**3,695**	**3,810**	**3,897**	**3,991**
Total	**141,546**	**145,653**	**148,294**	**143,599**	**131,529**	**141,281**	**148,321**	**154,306**	**159,353**

Appendix 17: Ford Credit Assets and Revenues Forecast

	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
Assets									
Finance receivables, net	96,190	108,392	109,897	107,354	102,092	104,297	106,502	108,707	110,911
Ford Credit Investment in operating leases									
Vehicles and other equipment, at cost	32,823	32,659	33,557	33,386	36,802	40,551	44,301	48,050	51,799
Accumulated depreciation	(5,614)	(5,998)	(6,143)	(5,768)	(9,571)	(13,320)	(17,070)	(20,819)	(24,568)
Net investment in operating leases (NIOL)	27,209	26,661	27,414	27,618	27,231	27,231	27,231	27,231	27,231
Automotive Investment in operating leases									
Investment		193	352	120	240	224	224	224	224
Depreciation		239	221	213	222	224	224	224	224
Net investment in operating leases (NIOL)	1,620	1,574	1,705	1,612	1,630	1,630	1,630	1,630	1,630
Total Ford NIOL	28,829	28,235	29,119	29,230	28,861	28,861	28,861	28,861	28,861
Revenues									
Leasing income	-	5,552	5,795	5,899	5,819	5,778	5,778	5,778	5,778
Financing income	-	5,184	5,841	5,996	5,564	5,483	5,600	5,717	5,834
Insurance income	-	158	164	161	161	161	161	161	161
Other Revenue	-	219	218	204	214	214	214	214	214
Total Revenue	**10,253**	**11,113**	**12,018**	**12,260**	**11,758**	**11,636**	**11,753**	**11,870**	**11,987**

Appendix 18: Depreciation and Amortization

Property	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
Total land, plant and equipment, and other	49,821	54,766	56,057	56,661	59,789	62,945	66,345	69,998	73,912
Accumulated depreciation	(27,804)	(29,862)	(30,243)	(31,020)	(33,645)	(36,321)	(39,047)	(41,841)	(44,724)
Net land, plant and equipment, and other	22,017	24,904	25,814	25,641	26,144	26,624	27,298	28,156	29,189
Tooling, net of amortization	10,055	10,423	10,364	10,828	10,538	10,538	10,538	10,538	10,538
Total Net Property	**32,072**	**35,327**	**36,178**	**36,469**	**36,682**	**37,162**	**37,837**	**38,695**	**39,727**
Depreciation and amortization									
Depreciation and other amortization	2,130	2,292	2,504	2,645	2,625	2,676	2,726	2,795	2,882
Tooling amortization	2,563	2,695	2,909	3,409	3,162	3,077	3,077	3,077	3,077
Operating Lease Depreciation Expense	4,330	4,254	3,972	3,635	4,025	3,974	3,974	3,974	3,974
Automotive	-	239	221	213	222	224	224	224	224
Ford Credit	-	4,015	3,751	3,422	3,803	3,749	3,749	3,749	3,749
Total Depreciation and Amortization		**9,241**	**9,385**	**9,689**	**9,811**	**9,728**	**9,777**	**9,846**	**9,934**

Appendix 19: Other Income

In millions of US$

	2018	2019 (adjusted)*	F2020**	F2021	F2022	F2023	F2024	F2025
Net periodic pension and OPEB income/(cost), excluding service cost	$ 786	$ 898	$ 842	$ 842	$ 842	$ 842	$ 842	$ 842
Investment-related interest income	667	809	$ 738	$ 738	$ 738	$ 738	$ 738	$ 738
Interest income/(expense) on income taxes	33	(29)	$ 2	$ 2	$ 2	$ 2	$ 2	$ 2
Realized and unrealized gains/(losses) on cash equivalents, marketable securities, and other investments	115	144	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130
Gains/(Losses) on changes in investments in affiliates	42	20	$ 3,000	$ 31	$ 31	$ 31	$ 31	$ 31
Gains/(Losses) on extinguishment of debt	-	(55)	$ -	$ -	$ -	$ -	$ -	$ -
Royalty income	491	381	$ 436	$ 436	$ 436	$ 436	$ 436	$ 436
Insurace Premiums Earned	-	-	$ -	$ -	$ -	$ -	$ -	$ -
Other	113	106	$ 110	$ 110	$ 110	$ 110	$ 110	$ 110
Total	$ 2,247	$ 2,274	**$ 5,257**	**$ 2,288**	**$ 2,288**	**$ 2,288**	**$ 2,288**	**$ 2,288**

*OPEB non-recurrent remeasurement of 2.5B$ in 2019
**Ford will have a one-off 3B$ gain in investment in affilliates, due to a transaction with Volkswagen and Argo AI

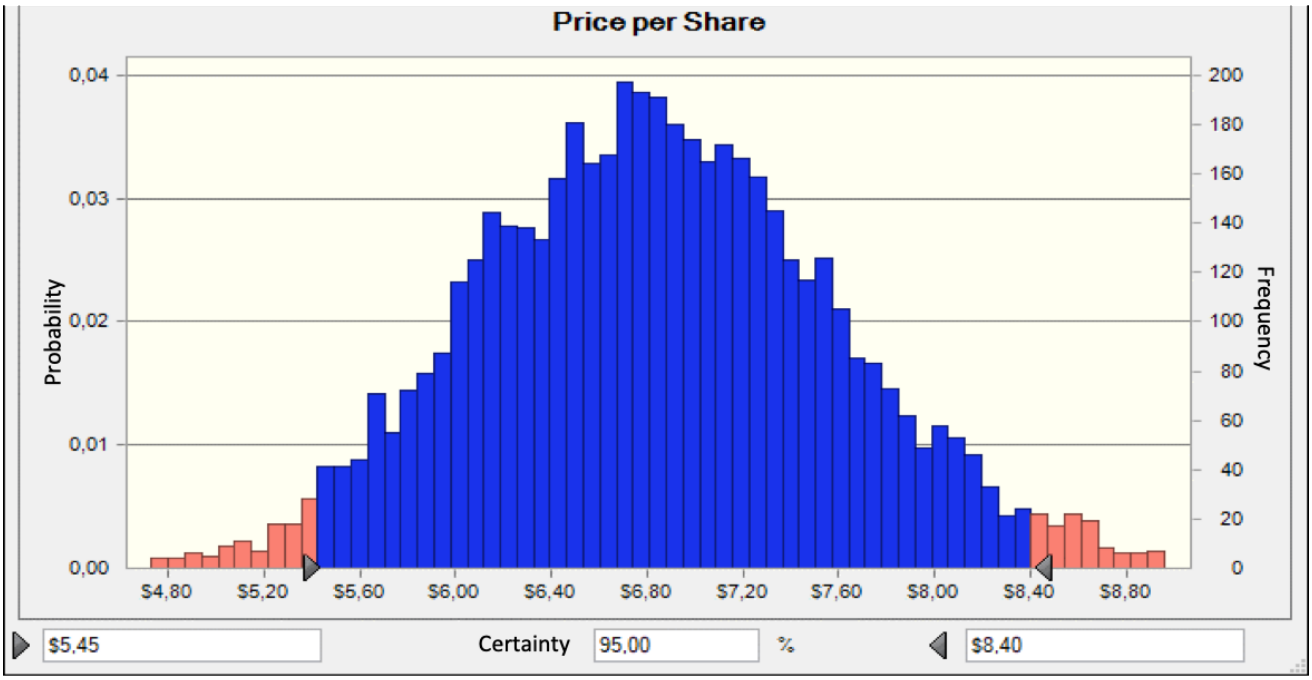
Appendix 20: GDP and Other Data Forecast

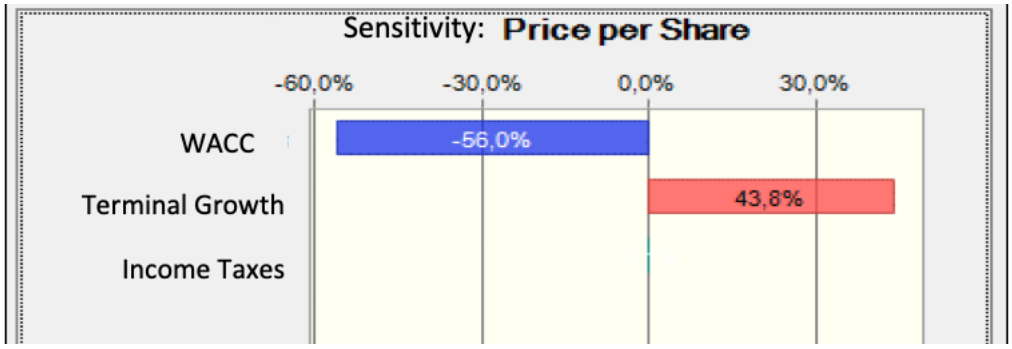
Real GDP growth (Annual percent change)	2020F	2021F	2022F	2023F	2024F
China	1.7%	7.3%	5.5%	5.3%	5.0%
North America	-5.4%	4.0%	2.6%	2.3%	2.0%
Asia and Pacific	-2.4%	5.1%	4.1%	4.2%	4.2%
Middle East and Africa	-5.9%	1.7%	2.9%	3.2%	3.1%
South America	-8.2%	3.4%	3.1%	2.3%	2.4%
Europe	-7.5%	5.1%	2.9%	2.5%	2.0%

Source: The Economist - Intelligence Unit

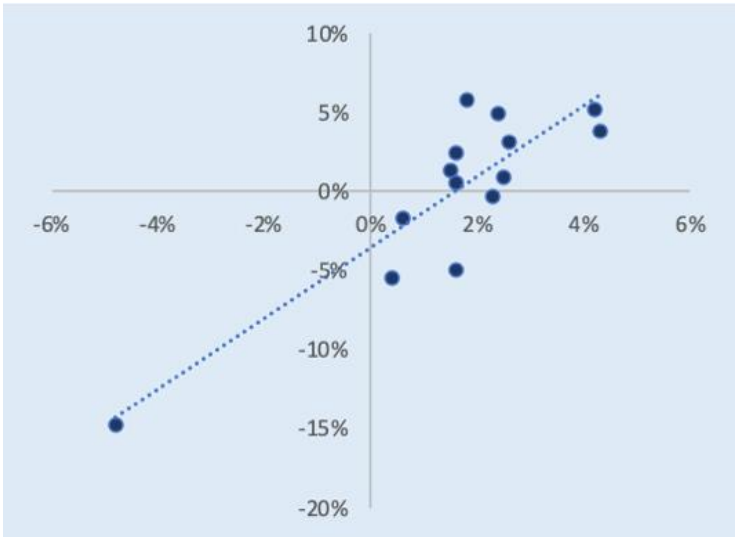
Inflation rate	2021F
United States	2.20%
Europe	1.60%

Appendix 21: Monte-Carlo Simulation





Appendix 22: Correlation between GDP and Europe Sales Growth (2006-2019)



	PIB Growth	*Europe Sales Growth*
PIB Growth	1	
Europe Sales Growth	0.65	1

Computations exclude 2009 which is considered an outlier

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Level of Risk	SELL	REDUCE	HOLD/NEUTRAL	BUY	STRONG BUY
High Risk	0%≤	>0% & ≤10%	>10% & ≤20%	>20% & ≤45%	>45%
Medium Risk	-5%≤	>-5% & ≤5%	>5% & ≤15%	>15% & ≤30%	>30%
Low Risk	-10%≤	>-10% & ≤0%	>0% & ≤10%	>10% & ≤20%	>20%